



Diploma of Associate Engineer
3RD Year
Computer Information Technology

APPROVED BY TEVTA PUNJAB

A TEXTBOOK OF
GRAPHIC DESIGN
CIT-344



Developed By:
Academics Wing
Technical Education & Vocational
Training Authority Punjab

PREFACE



Graphic design is an essential element of modern visual communication. From billboards to product packaging, from web pages to mobile apps, graphic design plays a crucial role in shaping how we perceive and interact with the world around us. With the rise of digital technology, the demand for talented graphic designers has only continued to grow.

This book of CIT-344 Graphic Designing is a comprehensive guide to the principles, techniques, and tools of graphic design students of DAE CIT 3rd Year . For the student who just starting out, or looking to brush up on their skills, this book will provide you with the knowledge and practical skills needed to create effective and impactful designs.

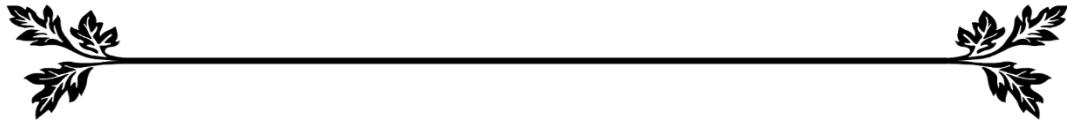
Throughout this book, we will explore the fundamental principles of design, including color theory, typography, layout, and composition. We will also delve into the practical skills and tools required to create stunning designs, such as Adobe Photoshop, CorelDRAW, AutoCAD and Wilcom. Additionally, we will examine the latest trends and innovations in the field of graphic design, from augmented reality to motion graphics.

This book is designed to be both informative and inspiring. Each chapter is filled with real-world examples, case studies, and design exercises that will challenge you to think creatively and develop your own unique design style. Whether you are interested in print or digital design, branding or advertising, this book will provide you with the knowledge and skills needed to succeed in today's fast-paced and ever-changing design industry.

We hope that this book will serve as a valuable resource for graphic designers of all levels, and inspire a new generation of designers to push the boundaries of creativity and innovation.



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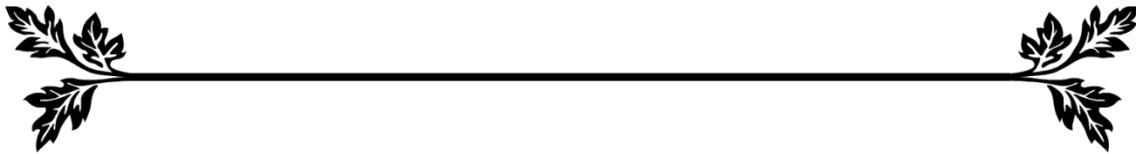
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CHEPTER-1



“INTRRODUCTION TO GRAPHIC DESIGNING”

Objectives

- 1.Thinking Design
- 1.2. The Concept of Graphic Designing
- 1.3. What does a designer do?
- 1.4. What is the difference between a graphic designer and an illustrator?
- 1.5. What is it like being a graphic designer?
- 1.6. What are the applications of graphic design?

1. INTRODUCTION

The term **graphic design** can refer to a number of artistic and professional disciplines which focus on visual communication and presentation. Various methods are used to create and combine symbols, images and/or words to create a visual representation of ideas and messages.

1.1 Thinking Design

Design is the process of creating solutions to problems, with the goal of improving the quality of life for individuals and communities. Design thinking is a problem-solving approach that emphasizes empathy, creativity, and iteration to develop effective solutions.

Design thinking is not just limited to creating aesthetically pleasing products or visuals. Instead, it involves a comprehensive approach to solving complex problems, whether they are related to business, technology, social issues, or environmental concerns.

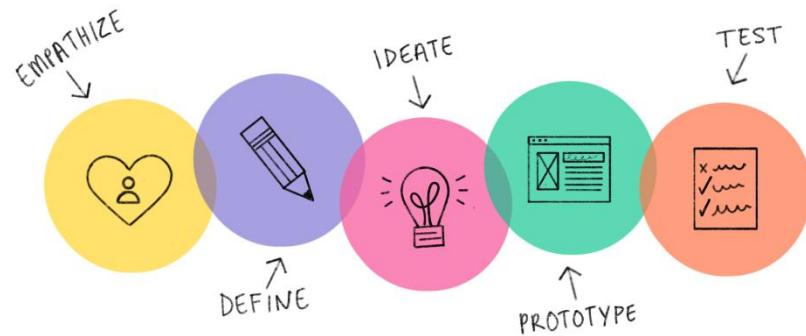


Figure 1.1. Thinking Design

At the core of design thinking is the ability to empathize with the end-user, to understand their needs and challenges. This empathetic understanding forms the foundation for developing innovative solutions that are tailored to the user's needs.

Design thinking is a problem-solving approach that focuses on understanding user needs and creating innovative solutions that meet those needs. The design thinking process typically consists of five stages:

1.1.1. Empathize:



The first stage involves developing an understanding of the user's needs and challenges. This may involve conducting interviews, surveys, and observations to gain insights into the user's behaviors, preferences, and pain points.

1.1.2. Define:



In this stage, you will analyze the information gathered during the empathy stage and synthesize it into a problem statement that defines the user's needs. The problem statement should be specific, actionable, and focused on the user's needs.

1.1.3. Ideate:



In this stage, you will generate a range of possible solutions to the problem identified in the define stage. This may involve brainstorming, sketching, and prototyping to explore different concepts and ideas.

1.1.4. Prototype:



The fourth stage involves creating a prototype of the most promising solution identified during the ideation stage. This may involve creating a physical or digital prototype, or a combination of both.

1.1.5. Test:



In the final stage, you will test the prototype with users to evaluate its effectiveness and gather feedback. This may involve conducting usability tests, focus groups, or other forms of user feedback.

Throughout the design thinking process, it is important to remain focused on the user's needs and to iterate on solutions based on feedback gathered during testing. This iterative approach helps to ensure that the final solution meets the needs of the user and provides a meaningful solution to their challenges.

1.2. The concept of graphic designing

The concept of graphic design involves using visual elements, such as typography, images, and color, to communicate a message or idea. Graphic design is all about creating a visual

representation of a concept, brand, or product that communicates its essence effectively to the target audience. This can involve everything from designing logos and packaging to creating websites and social media graphics.

At its core, graphic design is about solving problems and communicating ideas through visual means. It requires a combination of artistic talent, technical skills, and an understanding of the principles of design. These principles include elements like balance, contrast, hierarchy, and color theory, which help to create designs that are visually appealing and effective in communicating the intended message.

Graphic designers work with clients to understand their goals and target audience, and then use their skills to create designs that meet those objectives

Here are a few examples of graphic design in action:

- I. Logo Design:** One of the most common examples of graphic design is the creation of logos. Logos are visual symbols that represent a company or organization, and they are used to establish brand identity and recognition. A good logo is memorable, simple, and communicates the company's values and personality. For example, the Nike "swoosh" logo is a classic example of effective logo design.
- II. Packaging Design:** Another area where graphic design is commonly used is in product packaging. Packaging design can help a product stand out on store shelves and communicate important information to consumers. A well-designed package can also create a sense of anticipation and excitement around a product. For example, the colorful and playful packaging of LA Croix sparkling water has helped the brand become a cult favorite.
- III. Web Design:** Graphic design is also essential in creating effective websites. Web designers use a combination of visual elements, typography, and layout to create websites that are easy to navigate and visually appealing. A good web design can also help to establish brand identity and convey important information to visitors. For example, the clean and minimalist design of the Apple website is instantly recognizable and communicates the company's focus on simplicity and elegance.

These are just a few examples of the many ways that graphic design is used in our daily lives.

1.3. What does a designer do?

A graphic designer is responsible for creating visual designs that communicate a message or idea to a specific audience. Here are some of the key tasks that a designer may be responsible for:

- I. Meeting with clients:** A designer will often meet with clients to discuss their needs and goals. They may need to ask questions to clarify the project brief and get a better understanding of the target audience.
- II. Conducting research:** Once they have a clear understanding of the project requirements, a designer may conduct research into the industry, target audience, and competition. This can help them to create designs that are both effective and unique.
- III. Developing concepts:** Based on the project brief and research, a designer will begin to develop initial design concepts. They may sketch out ideas by hand or use software to create digital designs.
- IV. Refining designs:** Once initial concepts have been developed, a designer will refine and develop them further. This may involve tweaking layouts, adjusting color schemes, or experimenting with different typography.
- V. Presenting designs:** A designer will present their final designs to the client and may need to explain their thought process and design decisions. They may need to make revisions based on feedback from the client.
- VI. Preparing files for production:** Once the final design has been approved, a designer will prepare files for production. This may involve preparing print files, creating web graphics, or handing off files to developers.

Overall, a designer is responsible for creating visually appealing and effective designs that communicate a message to a specific audience. They must have a strong understanding of design principles, be proficient in design software, and be able to work collaboratively with clients and other professionals.

1.4. What is the difference between graphic designer and an illustrator?

Graphic design and illustration are both creative fields that involve visual communication. While there is some overlap between the two disciplines, they are distinct in several ways. Here are some key differences between graphic designers and illustrators:

- I. Purpose:** Graphic designers create visual designs to communicate a message or solve a problem for a specific audience, while illustrators create visual representations of a concept or idea.
- II. Medium:** Graphic designers typically work with a variety of media, including print, digital, and environmental design. Illustrators, on the other hand, usually work in

traditional media such as pencil, ink, watercolor, or digital tools to create standalone images or illustrations that are meant to be used within other designs.

- III. Skillset:** Graphic designers typically have a broad range of skills that include typography, layout design, branding, and image editing. Illustrators, on the other hand, have a narrower focus on drawing, painting, or creating digital illustrations.
- IV. Collaboration:** Graphic designers often collaborate with other professionals such as writers, photographers, and web developers, while illustrators tend to work more independently.
- V. Career path:** Graphic designers have a wider range of career paths that include branding, advertising, web design, packaging, and print design, among others. Illustrators typically focus on publishing, editorial, or advertising work.
- VI. Education:** While both fields require artistic skills, graphic designers typically have a degree in graphic design or a related field, while illustrators may have a degree in fine arts or illustration.

In summary, while there is overlap between the two fields, graphic design is more focused on solving problems through visual communication, while illustration is focused on creating standalone images.

1.5. What is it being a graphic designer?

Being a graphic designer involves using various visual elements and design principles to create graphics that communicate messages and ideas effectively. Graphic designers use their creativity and technical skills to develop designs for a range of media, including print and digital formats. They work on projects such as branding, advertising, packaging, websites, social media, and more.

The role of a graphic designer can vary depending on the specific job and industry they work in, but some common tasks and responsibilities include:

- I.** Meeting with clients or project managers to discuss project requirements and goals.
- II.** Conducting research and gathering information to inform design decisions.
- III.** Creating sketches or mockups to visualize design concepts.
- IV.** Selecting appropriate colors, typography, and imagery to create a cohesive visual design.
- V.** Creating digital or print designs using software such as Adobe Creative Suite.
- VI.** Collaborating with other professionals such as writers, photographers, and web developers to ensure the design is cohesive and effective.
- VII.** Communicating design choices and rationale to clients or team members.

VIII. Reviewing and making revisions to designs based on feedback.

IX. Preparing final designs for production, whether it be digital or print.

In addition to technical design skills, graphic designers should also have strong communication skills, creativity, attention to detail, and the ability to work under tight deadlines. Many graphic designers have a degree in graphic design or a related field, although it's possible to enter the field through a combination of self-taught skills and on-the-job experience.

1.6. What are the applications of graphic design?

Graphic design has a wide range of applications across many different industries and fields.

Here are some common applications of graphic design:

- I. Advertising:** Graphic design is often used in advertising to create eye-catching visuals that promote products or services.
- II. Branding:** Graphic design is crucial in creating a brand identity, including logos, packaging, and marketing materials.
- III. Web design:** Graphic design is used in creating visually appealing websites, including layout, typography, and imagery.
- IV. Print design:** Graphic design is used in creating printed materials, such as brochures, posters, and magazines.
- V. Product design:** Graphic design is often used in creating product packaging, labels, and instructions.
- VI. Environmental design:** Graphic design is used in designing signs, wayfinding systems, and other visual elements in public spaces.
- VII. Motion graphics:** Graphic design is used in creating animated visuals for films, TV shows, and other media.

Overall, graphic design plays a crucial role in communicating visual messages and creating memorable experiences for audiences in various industries.

Note: For your knowledge the best software for graphic designing now days:

There are several software options available for graphic design, each with its own strengths and weaknesses. Some of the most popular options include:

- I. Adobe Creative Cloud:** Adobe's suite of design software includes Photoshop, Illustrator, InDesign, and more. It is widely used by designers across the industry for its advanced features and versatility.
- II. Sketch:** Sketch is a popular software for creating user interfaces and web designs. It is known for its intuitive interface and ease of use.

- III. **Affinity Designer:** Affinity Designer is a professional-grade design software that offers advanced vector tools, a range of export options, and a lower price point than some of its competitors.
- IV. **Procreate:** Procreate is a digital illustration app for the iPad that offers a range of tools for drawing and painting. It is popular among illustrators and artists for its ease of use and flexibility.
- V. **Canva:** Canva is a web-based design tool that offers a range of pre-made templates and designs for social media graphics, presentations, and more. It is a popular option for non-designers who want to create professional-looking graphics quickly and easily.

Ultimately, the best software for graphic design depends on your specific needs and preferences. It is worth exploring multiple options to find the one that works best for you.

Best Graphic Design Software



Figure. V. Design Software

MULTIPLE CHOICE QUESTIONS

1- _____ is the process of creating solutions to problems,

- (a) Improving (b) Thinking (c) Design (d) Idea

2- The design thinking process typically consists of _____ stages.

- (a) Two (b) Three (c) Four (d) Five

3-Empathize stage is:

- (a) First stage (b) Second stage (c) Third stage Fourth stage

4- Empathize may involve:

- (a) Conducting interviews (b) Surveys (c) Preferences (d) All of these

5-ideate may involve.

- (a) Brainstorming (b) Sketching (b) Prototyping (d) All of these

6-prortotype may involve.

- (a)Physical prototype (b) Digital prototype (c) None of these (d) Combination of both

7- The concept of graphic design involves Visual element such as:

- (a) color (b)Typography(c) Images (d) All of these

8- Examples of graphic design

- (a) Logo Design (b) Packaging Design (c) Web Design (d) All of these

9- A designer will often meet with clients to discuss their needs and goals

- (a) Conducting research (b) Refining designs (c) Meeting with clients

(d) Presenting designs

10- Graphic design is crucial in creating a brand identity, including logos, packaging, and marketing materials.

- (a)Branding (b) Web design (c) Product design (d) Advertising

11- Graphic design is used in creating animated visuals for films, TV shows, and other media.

- (a)Branding (b) Web design (c) Product design (d) Motion graphics

12 _____ is a popular software for creating user interfaces and web designs.

- (a)Affinity Designer (b) Sketch (c) Procreate (d)Canva

13- Digital illustration app is:

- (a)Procreate (b) Canva (c)Affinity Designer (d) Sketch

14-Graphic designers typically work with a variety of media, including print, digital, and environmental design.

- (a)Medium (b) Skillset (c) Career path (d) Education

15- What are the applications of graphic design?

- (a)Branding (b) Web design (c) Product design (d) All of these

MCQS ANSWERS

Q.No.	Answer								
1	c	2	d	3	a	4	d	5	d
6	d	7	d	8	d	9	c	10	a
11	d	12	b	13	a	14	a	15	d

SHORT QUESTIONS

1. Define Thinking Design?
2. What is Empathize?
3. What is Define?
4. What is Prototype?
5. What is Test?
6. What does a designer do?
7. What is it being a graphic designer?
8. Write any two applications of graphic design?
9. What does a designer do?
10. Write the name of best graphic design software?

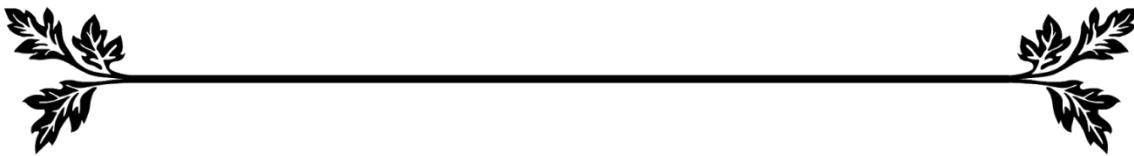
LONG QUESTION

1. What is the difference between graphic designer and an illustrator?
2. What does a designer do?
3. What are basic design thinking process stages?
4. What are the applications of graphic design?

Reference:

1. Mastering Photoshop CC Layers: Professional Strength Photo Editing by Robin Whalley
2. How Do I Do That in Photoshop? By scott kelby
3. Grid Systems in Graphic Design Josef Müller-Brockmann, 1981

CHEPTER-2



“INTRODUCTION TO ADOBE PHOTOSHOP”

- 2.Introduction to Adobe PhotoShop
 - 2.1. Adobe Photoshop Tools Overview
 - 2.2. What are pixels?
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 - 2.6. Types of Layers
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2. Introduction to Adobe Photoshop:

Adobe Photoshop is a computer program used for editing and manipulating images. It has a lot of tools and features that allow people to adjust colors, remove blemishes, and add special effects to photos. It is used by designers, photographers, and artists to create beautiful visual content. Photoshop is available for both Windows and Mac computers, and can be purchased as a subscription or one-time payment. Photoshop was created in 1988 by Thomas and John Knoll. It is also compatible with other Adobe software, making it a valuable tool for creative. In addition to its advanced editing features, Photoshop also offers various tools for creating animations and designing websites. Its ability to integrate with other Adobe software, such as Illustrator and InDesign, makes it an essential tool for designers and creative across different industries.

Photoshop's Interface



Figure .2 Photoshop's Interface

2.1 Adobe Photoshop tools overview

Adobe Photoshop is a powerful image editing software that offers a wide range of tools and features for creating and manipulating digital images

2.1.1. The Tools Layout

Let's look at how the Toolbar in Photoshop is organized. While it may seem like the tools are listed randomly, there's actually a logical order to it, with related tools grouped together.

The tools layout in the Toolbar.

Photoshop Tools Layout

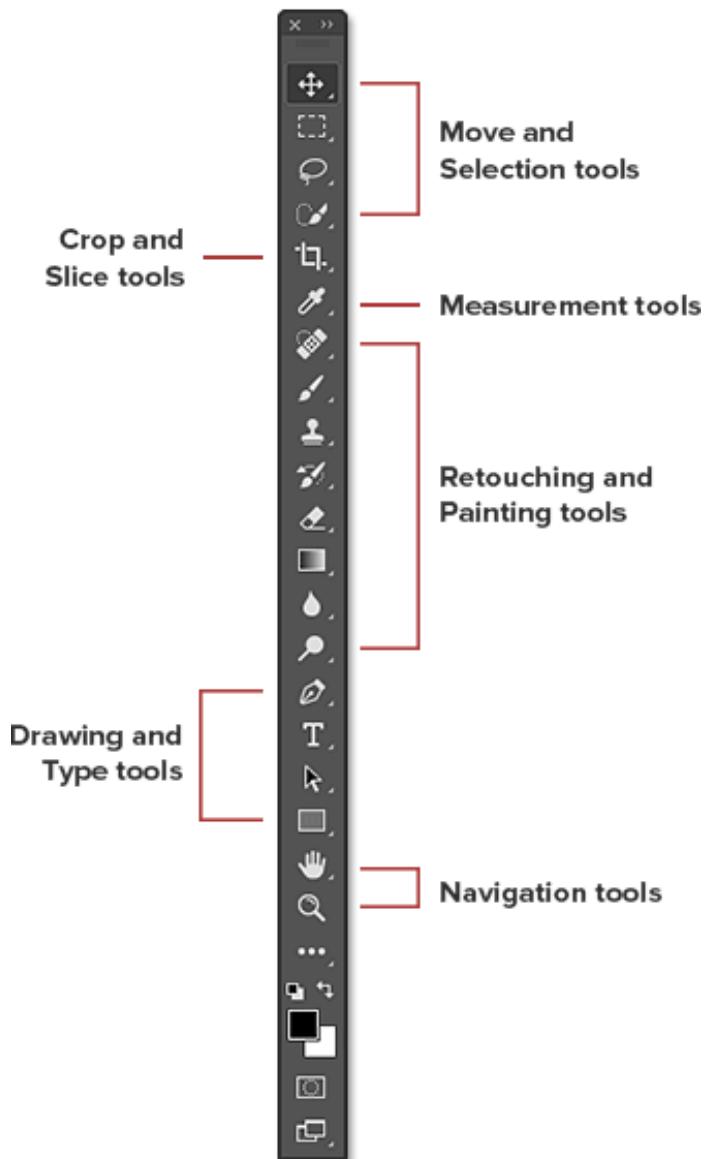


Figure. 2.1.1 Photoshop tools

2.1.2. The Hidden Tools

Each tool in the Toolbar is represented by an icon, and there are many more tools available than what we see. A small arrow in the bottom right corner of a tool's icon means that there are additional tools hiding behind it in that same spot:



Figure.2.1.2

Most of the spots in the Toolbar contain more than one tool.

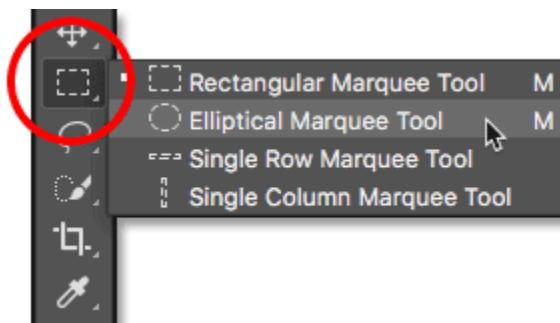


Figure.2.1.2.1

To view and access the additional tools, click and hold on the icon. Or, right-click (Win) / Control-click (Mac) on the icon

Choosing a hidden tool from the fly-out menu.

2.1.3. The Default Tool

The tool that's initially displayed in each spot in the Toolbar is known as the default tool. The Elliptical Marquee Tool has taken its place:



Figure.2.1.3

Each spot in the Toolbar displays either the default tool or the last tool selected.

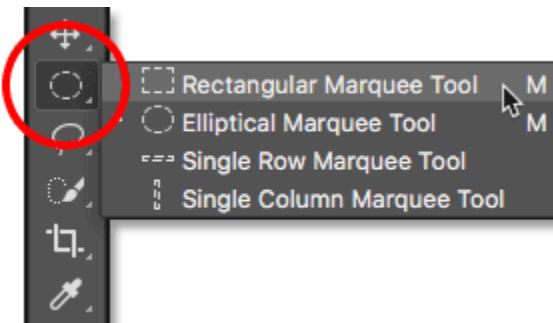


Figure.2.1.3.1

Selecting the Rectangular Marquee Tool from behind the Elliptical Marquee Tool.

2.1.4. Photoshop Tools Summary

Now that we've learned how Photoshop's Toolbar is organized and how to access all of the tools within it, let's look at the tools themselves. Here's a quick summary of each tool you'll find in the Toolbar, along with a brief description of what each tool is used for. Specific tools will be covered in more detail in other lessons. I've listed the tools in the order they're displayed in the Toolbar, beginning with the Move and Selection tools at the top.

An asterisk (*) after a tool's name indicates a default tool. The letter in parenthesis is the tool's keyboard shortcut. To cycle through tools with the same keyboard shortcut, press and hold **Shift** as you press the letter. Note that if you're using Photoshop CS6, some tools are only available in the CS6 Extended version. All tools are available in Photoshop CC.

2.1.4.1 Move And Selection Tools

I. Move Tool * (V)



The Move Tool is used to move layers, selections and guides within a Photoshop document. Enable "Auto-Select" to automatically select the layer or group you click on.

II. Artboard Tool (V)



The Artboard Tool (new in Photoshop CC) allows you to easily design multiple web or UX (user experience) layouts for different devices or screen sizes.

III. Rectangular Marquee Tool * (M)



The Rectangular Marquee Tool draws rectangular selection outlines. Press and hold Shift as you drag to draw a square selection.

IV. Elliptical Marquee Tool (M)



The Elliptical Marquee Tool draws elliptical selection outlines. Press and hold Shift to draw a selection in a perfect circle.

V. Single Row Marquee Tool



The Single Row Marquee Tool in Photoshop selects a single row of pixels in the image from left to right.

VI. Single Column Marquee Tool

Use the Single Column Marquee Tool to select a single column of pixels from top to bottom.

VII. Lasso Tool (L)

With the Lasso Tool, you can draw a freeform selection outline around an object.

VIII. Polygonal Lasso Tool (L)

Click around an object with the Polygonal Lasso Tool to surround it with a polygonal, straight-edged selection outline.

IX. Magnetic Lasso Tool (L)

The Magnetic Lasso Tool snaps the selection outline to the edges of the object as you move your mouse cursor around it.

X. Quick Selection Tool * (W)

The Quick Selection Tool lets you easily select an object simply by painting over it with a brush. Enable "Auto-Enhance" in the Options Bar for better quality selections.

XI. Magic Wand Tool (W)

Photoshop's Magic Wand Tool selects areas of similar color with a single click. The "Tolerance" value in the Options Bar sets the range of colors that will be selected.

2.1.4.2. Crop And Slice Tools

I. Crop Tool * (C)



Use the Crop Tool in Photoshop to crop an image and remove unwanted areas. Uncheck "Delete Cropped Pixels" in the Options Bar to crop an image non-destructively.

II. Perspective Crop Tool (C)



Use the Perspective Crop Tool to both crop an image and fix common distortion or perspective problems.

III. Slice Tool (C)



The Slice Tool divides an image or layout into smaller sections (slices) which can be exported and optimized separately.

IV. Slice Select Tool (C)



Use the Slice Select Tool to select individual slices created with the Slice Tool.

2.1.4.3. Measurement Tools

I. Eyedropper Tool * (I)



Photoshop's Eyedropper Tool samples colors in an image. Increase "Sample Size" in the Options Bar for a better representation of the sampled areas color.

II. 3D Material Eyedropper Tool (I)



Use the 3D Material Eyedropper Tool to sample material from a 3D model in Photoshop.

III. Color Sampler Tool (I)



The Color Sampler Tool displays color values for the selected (sampled) area in an image. Up to four areas can be sampled at a time. View the color information in Photoshop's Info panel.

IV. Ruler Tool (I)



The Ruler Tool measures distances, locations and angles. Great for positioning images and elements exactly where you want them.

V. Note Tool (I)



The Note Tool allows you to attach text-based notes to your Photoshop document, either for yourself or for others working on the same project. Notes are saved as part of the .PSD file.

VI. Count Tool (I)



Use the Count Tool to manually count the number of objects in an image, or to have Photoshop automatically count multiple selected areas in the image.

2.1.4.4. Retouching And Painting Tools

I. Spot Healing Brush Tool * (J)



The Spot Healing Brush in Photoshop quickly removes blemishes and other minor problem areas in an image. Use a brush size slightly larger than the blemish for best results.

II. Healing Brush Tool (J)



The Healing Brush lets you repair larger problem areas in an image by painting over them. Hold Alt (Win) / Option (Mac) and click to sample good texture, then paint over the problem area to repair it.

III. Patch Tool (J)



With the Patch Tool, draw a freeform selection outline around a problem area. Then repair it by dragging the selection outline over an area of good texture.

IV. Content-Aware Move Tool (J)



Use the Content-Aware Move Tool to select and move part of an image to a different area. Photoshop automatically fills in the hole in the original spot using elements from the surrounding areas.

V. Red Eye Tool (J)



The Red Eye Tool removes common red eye problems in a photo resulting from camera flash.

VI. Brush Tool * (B)



The Brush Tool is Photoshop's primary painting tool. Use it to paint brush strokes on a layer or on a layer mask.

VII. Pencil Tool (B)



The Pencil Tool is another of Photoshop's painting tools. But while the Brush Tool can paint soft-edge brush strokes, the Pencil Tool always paints with hard edges.

VIII. Color Replacement Tool (B)



Use the Color Replacement Tool in Photoshop to easily replace the color of an object with a different color.

IX. Mixer Brush Tool (B)



Unlike the standard Brush Tool, the Mixer Brush in Photoshop can simulate elements of real painting such as mixing and combining colors, and paint wetness.

X. Clone Stamp Tool * (S)



The Clone Stamp Tool is the most basic of Photoshop's retouching tools. It samples pixels from one area of the image and paints them over pixels in another area.

XI. Pattern Stamp Tool (S)

Use the Pattern Stamp Tool to paint a pattern over the image.

XII. History Brush Tool * (Y)

The History Brush Tool paints a snapshot from an earlier step (history state) into the current version of the image. Choose the previous state from the History panel.

XIII. Art History Brush Tool (Y)

The Art History Brush also paints a snapshot from an earlier history state into the image, but does so using stylized brush strokes.

XIV. Eraser Tool * (E)

The Eraser Tool in Photoshop permanently erases pixels on a layer. It can also be used to paint in a previous history state.

XV. Background Eraser Tool (E)

The Background Eraser Tool erases areas of similar color in an image by painting over them.

XVI. Magic Eraser Tool (E)

The Magic Eraser Tool is similar to the Magic Wand Tool in that it selects areas of similar color with a single click. But the Magic Eraser Tool then permanently deletes those areas.

XVII. Gradient Tool * (G)



Photoshop's Gradient Tool draws gradual blends between multiple colors.

The Gradient Editor lets you create and customize your own gradients.

XVIII. Paint Bucket Tool (G)



The Paint Bucket Tool fills an area of similar color with your Foreground color or a pattern. The "Tolerance" value determines the range of colors that will be affected around the area where you clicked.

XIX. 3D Material Drop Tool (G)



Used in 3D modeling, the 3D Material Drop Tool lets you sample a material from one area and then drop it into another area of your model, mesh or 3D layer.

XX. Blur Tool *



The Blur Tool blurs and softens areas you paint over with the tool.

XXI. Sharpen Tool



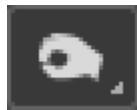
The Sharpen Tool sharpens areas you paint over.

XXII. Smudge Tool

The Smudge Tool in Photoshop smudges and smears the areas you paint over. It can also be used to create a finger-painting effect.

XXIII. Dodge Tool * (O)

Paint over areas in the image with the Dodge Tool to lighten them.

XXIV. Burn Tool (O)

The Burn Tool will darken the areas you paint over.

XXV. Sponge Tool (O)

Paint over areas with the Sponge Tool to increase or decrease color saturation.

2.1.4.5. Drawing And Type Tools**I. Pen Tool * (P)**

Photoshop's Pen Tool allows you to draw extremely precise paths, vector shapes or selections.

II. Freeform Pen Tool (P)

The Freeform Pen Tool allows you to draw freehand paths or shapes. Anchor points are automatically added to the path as you draw.

III. Add Anchor Point Tool

Use the Add Anchor Point Tool to add additional anchor points along a path.

IV. Delete Anchor Point Tool

Click on an existing anchor point along a path with the Delete Anchor Point Tool to remove the point.

V. Convert Point Tool

On a path, click on a smooth anchor point with the Convert Point Tool to convert it to a corner point. Click a corner point to convert it to a smooth point.

VI. Horizontal Type Tool * (T)

Known simply as the Type Tool in Photoshop, use the Horizontal Type Tool to add standard type to your document.

VII. Vertical Type Tool (T)

The Vertical Type Tool adds type vertically from top to bottom.

VIII. Vertical Type Mask Tool (T)

Rather than adding editable text to your document, the Vertical Type Mask Tool creates a selection outline in the shape of vertical type.

IX. Horizontal Type Mask Tool (T)

Like the Vertical Mask Type Tool, the Horizontal Type Mask Tool creates a selection outline in the shape of type. However, the type is added horizontally rather than vertically.

X. Path Selection Tool * (A)

Use the Path Selection Tool (the black arrow) in Photoshop to select and move an entire path at once.

XI. Direct Selection Tool (A)

Use the Direct Selection Tool (the white arrow) to select and move an individual path segment, anchor point or direction handle.

XII. Rectangle Tool * (U)

The Rectangle Tool draws rectangular vector shapes, paths or pixel shapes. Press and hold Shift as you drag to force the shape into a perfect square.

XIII. Rounded Rectangle Tool (U)

The Rounded Rectangle Tool is similar to the standard Rectangle Tool but draws the shapes with rounded corners. Press and hold Shift to draw a square with rounded corners.

XIV. Ellipse Tool (U)

The Ellipse Tool draws elliptical vector shapes, paths or pixel shapes. Press and hold Shift as you drag to draw a perfect circle.

XV. Polygon Tool (U)

The Polygon Tool draws polygonal, straight-edged vector shapes, paths or pixel shapes. Use the "Sides" option in the Options Bar to set the number of sides.

XVI. Line Tool (U)

The Line Tool draws straight lines, either as shapes or paths. The "Weight" option in the Options Bar controls the width of the line.

XVII. Custom Shape Tool (U)

Photoshop's Custom Shape Tool lets you select and draw custom shapes. Choose from Photoshop's built-in custom shapes or create your own.

2.1.4.6. Navigation Tools**I. Hand Tool * (H)**

The Hand Tool lets us click and drag an image around on the screen to view different areas when zoomed in.

II. Rotate View Tool (R)

Use the Rotate View Tool in Photoshop to rotate the canvas so you can view and edit the image from different angles.

III. Zoom Tool * (Z)



Click on the image with the Zoom Tool to zoom in on a specific area. Press and hold Alt (Win) / Option (Mac) and click with the Zoom Tool to zoom out.

Options Bar



Figure. Option bar

The Options bar appears at the top of the screen and is context sensitive, changing as you change tools. The tool in use is shown in the left corner, and options relating to the tool appear to the right of that.

For example, in the snapshot above, the move tool is selected.

Auto Select Layer when checked means that the move tool will switch layers automatically depending where you click on the canvas. This makes it feel almost like a vector program when you are selecting objects. The layer palette still shows you what is on each layer and you can use it to select objects as well.

Show Bounding Box makes it easy to rotate or transform an object when you click on it. When the cursor is held over the corners of the bounding box, it turns into a curved arrow. Click and drag to rotate.

2.2 What are pixels?

Pixels are the individual dots that make up a digital image. Each pixel represents a single point in the image and contains information about its color and brightness. When you view a digital image on a screen or print it out, you are actually seeing a grid of pixels arranged in a specific pattern to create the image.

The word "pixel" is derived from the phrase "picture element". Pixels are the smallest unit of a digital image that can be displayed or manipulated. The more pixels an image contains, the higher its resolution, which means that it will be sharper and more detailed.

Size	72 PPI	96 PPI	150 PPI	300 PPI
4A0	4768 x 6741	6357 x 8988	9933 x 14043	19866 x 28087
2A0	3370 x 4768	4494 x 6357	7022 x 9933	14043 x 19866
A0	2384 x 3370	3179 x 4494	4967 x 7022	9933 x 14043
A1	1684 x 2384	2245 x 3179	3508 x 4967	7016 x 9933
A2	1191 x 1684	1587 x 2245	2480 x 3508	4960 x 7016
A3	842 x 1191	1123 x 1587	1754 x 2480	3508 x 4960
A4	595 x 842	794 x 1123	1240 x 1754	2480 x 3508
A5	420 x 595	559 x 794	874 x 1240	1748 x 2480
A6	298 x 420	397 x 559	620 x 874	1240 x 1748
A7	210 x 298	280 x 397	437 x 620	874 x 1240
A8	147 x 210	197 x 280	307 x 437	614 x 874
A9	105 x 147	140 x 197	219 x 307	437 x 614
A10	74 x 105	98 x 140	154 x 219	307 x 437

Figure.2.2 (Resolution)

Photoshop files are made up of tiny squares of color called pixels. Using large pixels will make a grainy image, and using tiny pixels to make the same image will be much smoother. However, the smaller the pixels, the more of them there are in the file, and the larger the file size will be. If the file size is large, it opens slower, takes longer to save, and takes up more room on a disk. The key in choosing a resolution is finding the balance between image quality and file size.

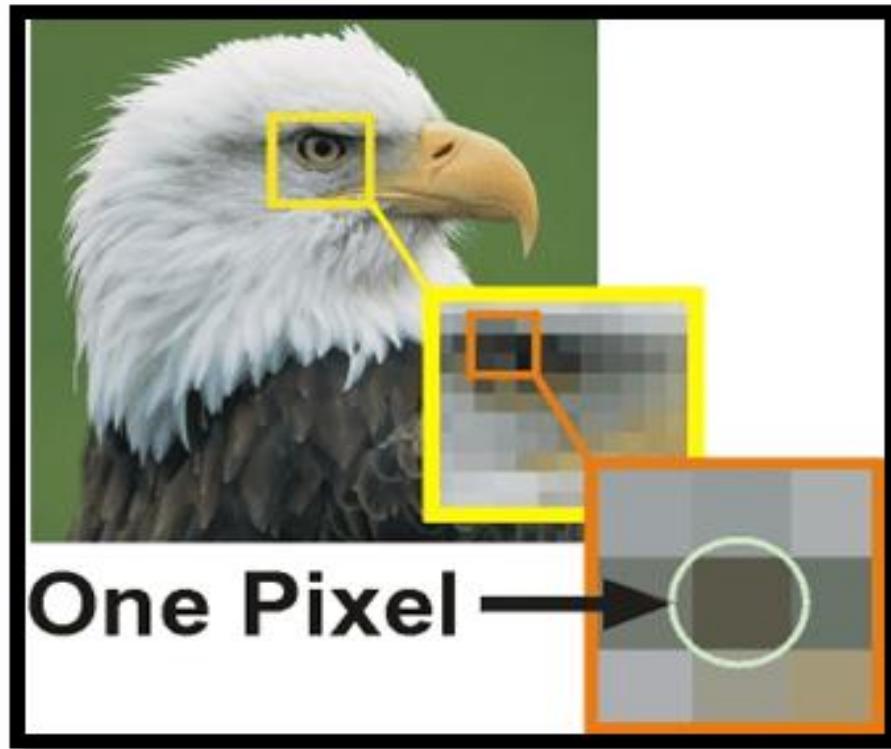


Figure. 2.2.1 (Pixel)

Image Size Dialog Box

JPEG images from the Internet have a low resolution of 72 dpi. However there is no reason that your JPEG images have to have such a low resolution. Image files generated by digital cameras often begin with a low resolution but very large dimensions. You can use that to your advantage by trading area for resolution. To change the resolution or the size of your image, go to File > Image Size. It will look something like this.

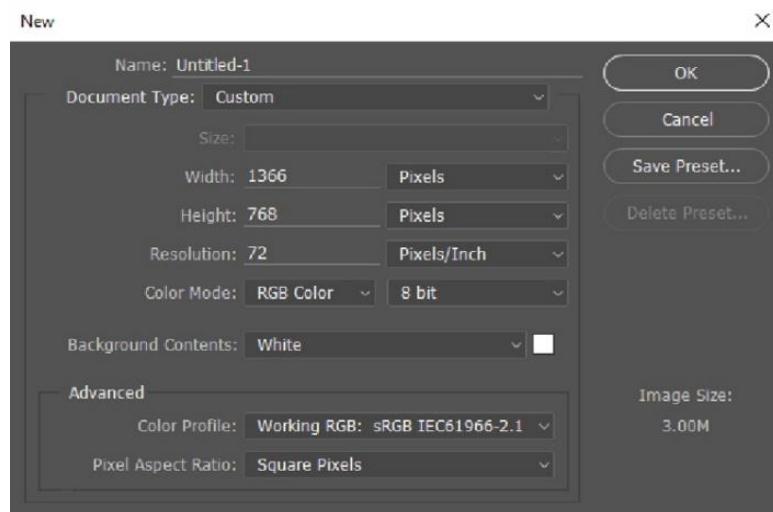


Figure 2.2.2 (Image size dialog box)

2.3 Why Use Adobe Photoshop Layers?

Adobe Photoshop Layers are an essential part of the image editing process. Layers allow you to work on different parts of an image without affecting the rest of it.

Here are some reasons why you should use Adobe Photoshop layers:

2.3.1. Non-destructive editing:

When you use layers, you can make changes to your image without permanently altering the original. Each layer can be edited independently, allowing you to adjust colors, lighting, and other effects without affecting the rest of the image.

2.3.2. Organization:

Layers help you organize your work by separating different elements of your design. For example, you can have one layer for the background, one for the subject, and another for text. This makes it easier to make changes or move elements around without affecting the rest of the image.

2.3.3. Blending modes:

Layers offer various blending modes that allow you to blend different layers together in creative ways. You can adjust the opacity of each layer to make elements more or less visible, and use blending modes to create different effects.

2.3.4. Masking:

Layers allow you to create masks to hide or reveal parts of your image. This is useful when you want to remove a background, add a texture, or blend multiple images together seamlessly.

2.3.5. Flexibility:

Layers offer tremendous flexibility, allowing you to experiment with different design elements and effects. You can add or remove layers, adjust their properties, and reorder them to achieve the desired result.

In summary, layers in Adobe Photoshop is an essential tool for non-destructive image editing, organization, blending, masking, and flexibility.

2.4 What is layer?

In Photoshop, a layer is a transparent plane on which you can create or modify images. Think of layers as sheets of transparent film stacked on top of each other. Each layer can contain different elements of the image, such as text, shapes, images, and adjustments.

Working with layers allows you to create complex compositions by stacking multiple layers on top of each other, each with its own content, effects, and settings. Each layer can be edited independently, which means you can make changes to one layer without affecting the others.

You can add, delete, and rearrange layers in Photoshop, adjust their opacity and blending modes, and use layer masks to selectively reveal or hide parts of the layer. This provides you with tremendous flexibility and control over your design and image-editing projects.

Overall, layers are an essential feature of Photoshop that enables you to work on specific parts of an image without affecting the rest of it, giving you greater control and flexibility over your editing process.

2.5. Layers Panel

The Layers panel in Adobe Photoshop is where you can view and manage all the layers in your document. It provides you with a visual representation of each layer and allows you to manipulate them easily.

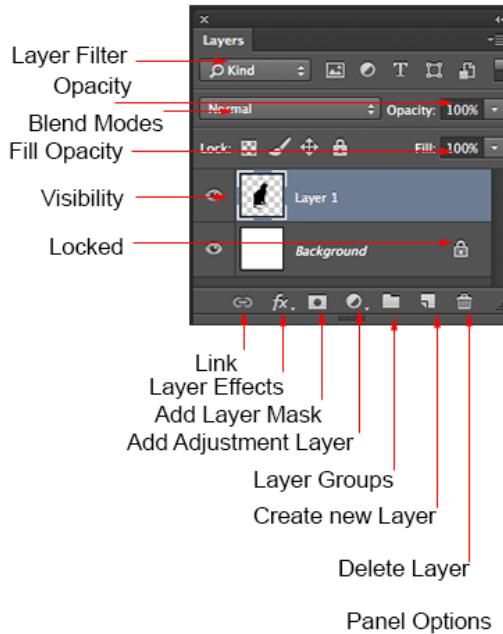


Figure.2.5 (Layers panel)

Have you ever wondered what all the parts of a layers panel do? Here is a screen grab of the layers Panel. I'll explain what all the parts are here.

- I. **Layer Filter:** This enables you to hide layers based on different things. Makes it easier to find the layers that you want to work with.
- II. **Opacity:** 0= transparent 100 = fully opaque. Press number keys on keyboard to instantly set to multiples of 10, or adjust the slider for an exact amount of transparency on each layer.
- III. **Blend Modes:** Change these to change the way that the selected layer blends with the layers underneath it. Great for compositing and special effects. (With the move tool selected, press *Shift+* or *Shift-* to cycle through blending modes).
- IV. **Fill opacity:** Adjusts the amount of opacity of the pixels only, but any layer styles are unaffected and remain 100% opaque.
- V. **Visibility:** If the eye is showing that layer is visible. Click on the eye and the layer will still be there but invisible until you click on the eye again.
- VI. **Locked:** The padlock means that something is locked in the layer. (Also click in the 4 icons in the “lock” next to fill opacity to make certain things editable or locked). Here are the different things that can be locked/unlocked.
 - VII. **Lock all:** If the box is checked the layer is totally protected from any editing.
 - Lock Position:** You can make any changes except for moving the image.
 - Lock Image pixels:** You cannot draw on this layer if checked.
 - Lock transparent:** You can paint on this layer but not where it is transparent.
- Useful tools at the bottom of the panel
- VIII. **Link:** Enabled you to link layers. These will all move together unless unlinked.
- IX. **Layer Effects (Styles):** Special effects applied to your image layer. Noted by the little f. Each effect will be listed. Multiple effects may be used at once.
- X. **Add Layer Mask:** This is the button to press to add a layer mask to the currently selected layer. Allows you to paint away parts of your layer without damaging your original image.
- XI. **Add Adjustment Layer:** The best way to apply image adjustments. There can change the color or tone of an image. All layers are affected underneath an adjustment layer (Unless clipped). This is a good option to using *Image>Adjustments* because adjustment layers are non-destructive and re editable.
- XII. **Layer Groups:** A good organizational tool. This puts layers into a folder. You can choose multiple layers and press *Cmd/Ctrl+G* to put them in a group, or create a group by clicking this icon. Layers can be dragged in or out of groups in the Layers panel.

- XIII. **Create New Layer:** Press this icon to create a new layer. Drag an existing layer into this icon to create a duplicate of that layer,
- XIV. **Delete Layer:** Drag a layer into this icon to remove it. Or select the layer and then press this icon to get the same result.
- XV. **Panel Options:** This will open a drop down menu that provides a number of options, many that aren't listed anywhere else.

2.6 Types of layers?

In Adobe Photoshop, there are several types of layers that you can use to create and modify images. Here are the most common types of layers:

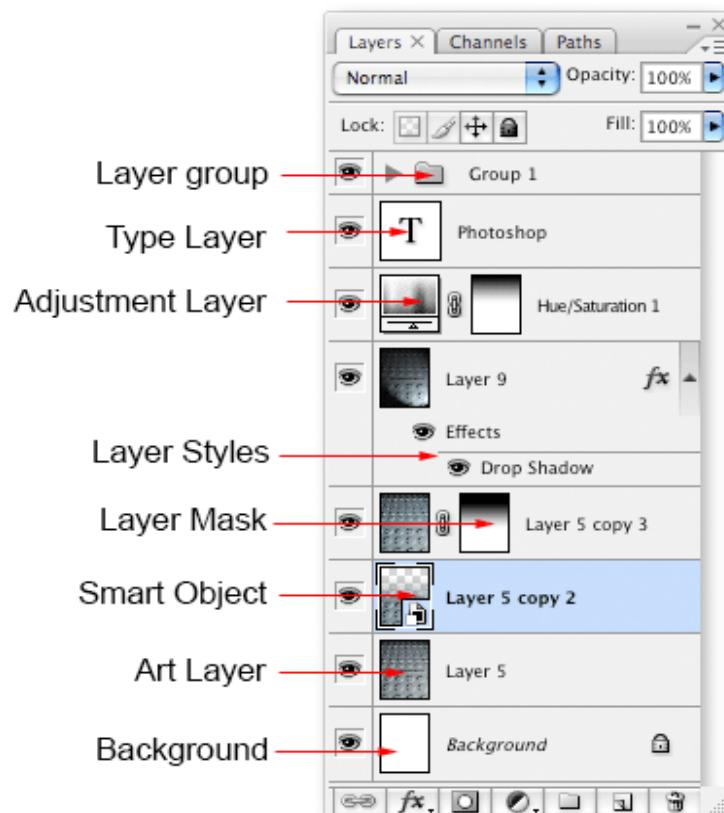


Figure.2.6 (Layers panel)

- I. **Image layer:** An image layer is a layer that contains an image or a part of an image. You can add, edit, or remove pixels in an image layer.
- II. **Adjustment layer:** An adjustment layer is a non-destructive layer that allows you to apply adjustments, such as brightness and contrast, levels, curves, and hue/saturation, to the layers beneath it. Adjustment layers affect all the layers beneath them.
- III. **Text layer:** A text layer is a layer that contains text. You can add, edit, or format text in a text layer.
- IV. **Shape layer:** A shape layer is a layer that contains a vector shape. You can add, edit, or modify vector shapes in a shape layer.
- V. **Smart object layer:** A smart object layer is a layer that contains a linked or embedded object. Smart object layers preserve the original quality of the object, allowing you to make non-destructive edits.
- VI. **Fill layer:** A fill layer is a layer that contains a solid color, gradient, or pattern. You can use fill layers to add color or texture to your design or image.
- VII. **Group layer:** A group layer is a layer that contains other layers. You can use group layers to organize and manage multiple layers.
- VIII. **Video layer:** A video layer is a layer that contains a video clip. You can edit the video clip within the layer and apply filters, color corrections, and other video effects.
- IX. **3D layer:** A 3D layer is a layer that contains 3D content, such as 3D models, 3D text, or 3D shapes. You can manipulate the 3D content within the layer, change the camera angle, and apply lighting and other effects.
- X. **Background layer:** The background layer is a special layer that is always located at the bottom of the Layers panel. It is automatically created when you create a new document in Photoshop and cannot be moved or transformed like other layers. You can convert the background layer into a regular layer by double-clicking on it and renaming it.

2.7 Layers shortcut keys:

Here are some commonly used shortcut keys for working with layers in Adobe Photoshop along with a brief explanation of what each one does:

- I. **Select layer below: Alt+[/]**
This shortcut key allows you to quickly select the layer below the currently selected layer.
- II. **Select layer above: Alt+Shift+[/]**

This shortcut key allows you to quickly select the layer above the currently selected layer.

III. Lock transparent pixels: / (forward slash)

This shortcut key allows you to lock transparent pixels on a layer, preventing any changes to them.

IV. Duplicate layer with dialogue: Ctrl/Cmd+Shift+Alt+N

This shortcut key opens the New Layer dialog box, allowing you to specify various properties of the new layer.

V. Merge down: Ctrl/Cmd+E

This shortcut key merges the currently selected layer with the layer below it.

VI. Merge visible to a new layer: Ctrl/Cmd+Shift+Alt+E

This shortcut key creates a new layer containing the merged content of all visible layers.

VII. Transform layer: Ctrl/Cmd+T

This shortcut key opens the Transform tool, allowing you to resize, rotate, and skew the currently selected layer.

VIII. Toggle layer mask on/off: \ (backslash)

This shortcut key allows you to quickly toggle the layer mask on and off for the currently selected layer.

IX. Move layer content: Ctrl/Cmd+Shift+Arrow keys

This shortcut key moves the content of the currently selected layer by a specified number of pixels.

X. Show/hide all other layers: Alt+click on the eye icon of a layer

This shortcut key allows you to quickly show or hide all layers except for the currently selected layer.

XI. Change layer opacity with dialogue: Ctrl/Cmd+Shift+O

This shortcut key opens the Layer Options dialog box, allowing you to specify the opacity of the currently selected layer.

XII. Copy layer style: Alt+click on the layer style icon of a layer

This shortcut key allows you to quickly copy the layer style (such as blending options and effects) of the currently selected layer to another layer.

These are just a few of the many shortcut keys available in Photoshop for working with layers. Using keyboard shortcuts can save you time and increase your productivity when working with layers in Photoshop.

MULTIPLE CHOICE QUESTIONS

1. Photoshop was created in:

- [a] 1987 [b] 1970 [c] 1980 [d] 1988

2. Who created Photoshop?

- [a] William [b] Thomas [c] John knoll [d] both b and c

3. Photoshop is available for:

- [a] Windows [b] MAC [c] Both a and b [d] None of these

4. The small arrow in the bottom right corner of a tool's icon means:

- [a] there is nothing behind it [b] there are additional tools hiding behind it
[c] There is navigation tool behind it [d] All of these

5. The tool that's initially displayed in each spot in the Toolbar is known as the

- [a] Hidden tool [b] Lasso tool [c] Default tool [c] Move to

6. Tool allows you to easily design multiple web or UX (user experience) layouts for different devices or screen sizes.

- [a] Move tool [b] single row marquee tool [c] Crop tool [d] Artboat tool

7. Dodge tool is used to:

- [a] Paint over areas in the image to lighten them.
[b] Paint over areas in the image to darken them. [c] Darken the areas you paint over
[d] Allows you to draw extremely precise paths, vector shapes or selections.

8. Paint over areas with the _____ Tool to increase or decrease color saturation.

- [a] Color Sampler [b] Note [c] Count [d] Sponge

9. Use the _____ in Photoshop to rotate the canvas so you can view and edit the image from different angles.

- [a] Zoom tool [b] Hand tool [c] Custom shape tool [d] Rotate View tool

10. You can draw a freeform selection outline around an object.

- [a] with Magic wand tool [b] with Slice tool. [c] With Lasso tool [d] none of above

11. Each pixel represents a_____ point in the image:

[a] one [b] two [c] Three [d] nine

12. JPEG images from the Internet have a low resolution of

[a] 56dpi [b] 72dpi [c] 34dpi [d] 69dpi

13. A layer is like a _____:

[a] solid plane [b] transparent plane [c] gradient plane [d] all of these

14. How many types of layers are?

[a] 4 [b] 6 [c] 8 [d] many

15. Smart object layer contain:

[a] Text [b] vector shape

[c] Linked and embedded object [d] none of these

16. Alt+[/] is used for:

[a] 3d layer [b] select layer below [c] Group layer [d] Video layer

17. This shortcut key merges the currently selected layer with the layer below it.

[a] Ctrl/Cmd+E [b] Alt+Shift+[/] [c] Ctrl/Cmd+T [d] Ctrl/Cmd+Shift+O

18. This shortcut key show or hide all layers except for the currently selected layer.

[a] Alt+click [b] / (forward slash) [c] \ (backslash) [d] Ctrl/Cmd+T

19. A layer that contains a vector shape

[a] Fill layer [b] image layer [c] Shape layer [d] Group layer

20. This enables you to hide layers based on different things. Makes it easier to find the layers that you want to work with.

[a] Opacity [b] Visibility [c] Blend Modes [d] Layer Filter

MCQS ANSWERS

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	d	6	d	11	a	16	b
2	d	7	a	12	b	17	a
3	c	8	d	13	b	18	a
4	b	9	d	14	d	19	c
5	a	10	c	15	c	20	d

SHORT QUESTIONS

1. Introduction to adobe Photoshop?
2. Define Magic Wand tool?
3. Define Crop tool?
4. Define Spot healing brush tool?
5. Define Patch tool?
6. Define Dodge tool?
7. Define Zoom tool?
8. Define Pixel?
9. What is layer?
10. What is Layer Panel?
11. What is Adjustment Layer?
12. Define hand tool?

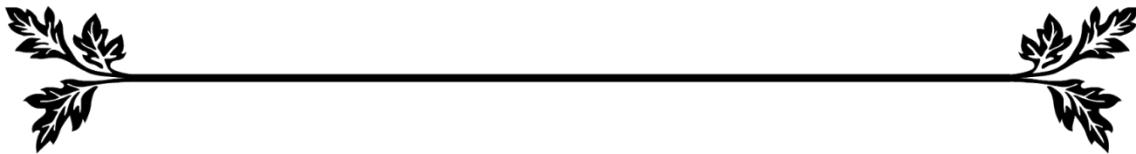
LONG QUESTION

1. What is layers and why use adobe Photoshop layer?
2. Write overview of Photoshop and write 10 tools?
3. Describe layers panels in detail?
4. What is pixels?

Reference:

1. Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media David Dabner, 2009
2. Mastering Photoshop CC Layers: Professional Strength Photo Editing by Robin Whalley
3. How Do I Do That in Photoshop? By scott kelby

CHEPTER-3



ADOBE PHOTOSHOP

OBJECTIVES

- 3.Adobe PhotoShop
 - 3.1. Use Magic Wand tool.
 - 3.2. Use Polygonal Lasso Tool.
 - 3.3. Use Pen Tool
 - 3.4. Change Colors with Edit in Quick Mask Mode
 - 3.5. Shining Face
 - 3.6. Brightness Face
 - 3.7. Photo Retouching

3.1. Use Magic Wand Tool:

The Magic Wand Tool selects similarly color areas:

- I. In the Toolbox, select the Magic Wand  Tool. On the Options bar, set the tool's options:
 - a. Tolerance defines the tools sensitivity. The higher value you set, the wider areas are selected.
 - b. Contiguous forces selecting similar colors only in the adjacent areas.
 - c. Anti-aliased softens the selection edges. It is set by default.
 - d. Use All Layers makes the Magic Wand to select likewise colored areas in all visible layers.
- II. Click on the image with the Magic Wand  Tool to select an area.
- III. While the New selection  operating mode is chosen on the Options bar, you delete the existing selection by making a new selection.
- IV. To add an area to the existing selection you have either to choose the Add to selection  option on the Options bar or to hold down [Shift] key while clicking.
- V. To subtract an area from the existing selection you have either to choose Subtract from selection  option on the Options bar or to hold down [Alt] key while clicking.
- VI. To intersect a new selection with the existing selection either choose the Intersect with selection  option on the Options bar or hold [Shift+Alt] keys while selecting.
- VII. While the New selection option is chosen and the cursor is within the selected area the tool looks like this  and can move the selection (i.e. borders of the selected area and not the image content).
- VIII. You can also move the selection using the keyboard cursor  keys.

Before we look at a real-world example of the Magic Wand in action, let's see how the tool works and how there's really magical about it. Here's a simple image I've created showing a black to white gradient separated by a solid red horizontal bar through its center:

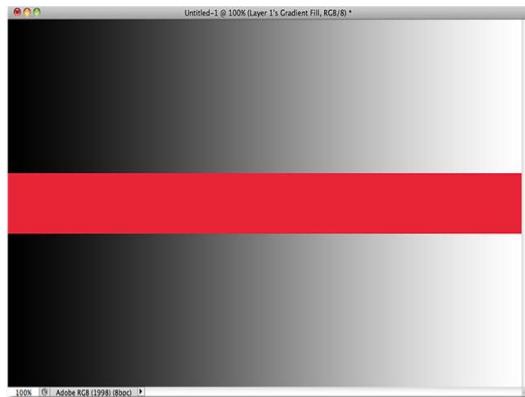


Figure 3.1 Example of magic wand tool

As I mentioned, Photoshop's Magic Wand selects pixels based on tone and colour. When we click on an area in the image with the tool, Photoshop looks at the tone and colour of the area we clicked on and selects pixels that share the same colour and brightness values. This makes the Magic Wand exceptional at selecting **large areas of solid colour**.

For example, let's say I want to select the horizontal red bar. All I need to do is click anywhere on the red bar with the Magic Wand. Photoshop will see that I've clicked on an area of red and will instantly select every pixel in the image that shares that same shade of red, effectively selecting the red bar for me just by clicking on it:

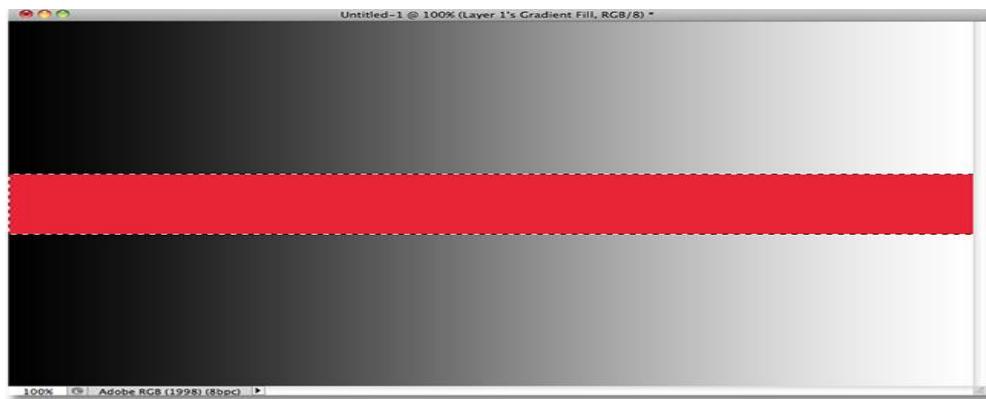


Figure 3.1.1 Example of magic wand tool

Tolerance:

The Tolerance option tells Photoshop how different in tone and colour a pixel can be from the area we clicked on for it to be included in the selection. By default, the Tolerance value is set to 32, which means that Photoshop will select any pixels that are the same colour as the area we

clicked on, plus any pixels that are up to 32 shades darker or 32 shades brighter. In the case of my gradient, which contains a total of 256 brightness levels between (and including) pure black and pure white, Photoshop selected the entire range of pixels that fell between 32 shades darker and 32 shades brighter than the shade of grey I initially clicked on.

Let's see what happens if I increase the Tolerance value and try again. I'll increase it to 64:



Figure 3.1.2 Tolerance

With Tolerance now set twice as high as it was originally, if I click with the Magic Wand on the exact same centre spot in the gradient, Photoshop should now select an area twice as large as it did last time, since it will include all the pixels that are between 64 shades darker and 64 shades lighter than the initial shade of grey, I click on.



Figure 3.1.3 Example Tolerance

3.2. Use Polygonal Lasso Tool

To edit and apply special effects to portion of your pictures, remove unwanted objects, or cut out objects from one picture and put it on another, that portion or object should be selected by using a selection tool. Since the polygonal lasso tool draws straight-edged selections or any geometrical shape selections. It is free hand selection for selecting angular objects.

You can also close a selection simply by double-clicking anywhere with the Polygonal Lasso Tool. Photoshop will automatically close the selection with a straight line from the point you clicked on to your initial starting point.

The Polygonal Lasso Tool in Photoshop is used to make selections of an image in straight line segments. Here's how to use it in detail in figure 3.2:

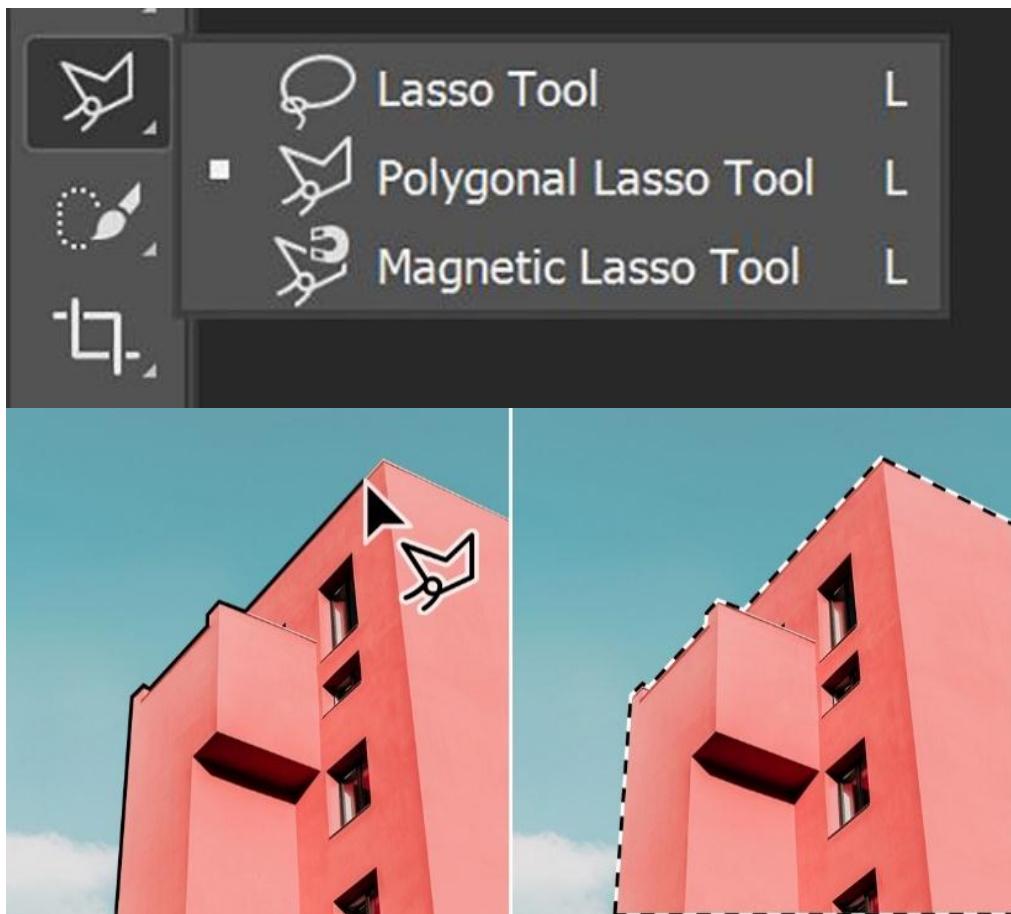


Figure 3.2 Polygonal Lasso Tool

- I. Open your image in Photoshop and select the Polygonal Lasso Tool from the toolbar on the left side of the screen. It looks like a lasso with straight edges.
- II. Click on the starting point of your selection. This will anchor the first point of the selection.
- III. Move the cursor to the next point of the selection and click again. The Polygonal Lasso Tool will draw a straight line between the first and second points.
- IV. Continue adding points to your selection by clicking on the next point. Each point will create a straight line between itself and the previous point.
- V. When you reach the final point of your selection, either click on the starting point to complete the selection, or double-click to close the selection.
- VI. If you make a mistake while making your selection, press the Backspace/Delete key to remove the last point. To start over, press Esc to cancel the selection.
- VII. Once you have made your selection, you can modify it as needed by using the Refine Edge or other selection tools.

- VIII. You can then use the selected area for editing, such as applying a filter, adjusting the color or tone, or copying and pasting to a new layer.
- IX. The Polygonal Lasso Tool is useful for making selections that require straight edges, such as selecting an object with distinct corners or edges. However, it may not be the best tool to use for selections that require more precise or complex shapes, such as selecting hair or other detailed areas. In those cases, you may want to consider using the Quick Selection Tool, the Magnetic Lasso Tool, or other selection tools and techniques.

Some examples:



Figure 3.2.1 blank billboard

As we can see, even though the billboard probably would appear rectangular to us if we were standing directly in front of it, the angled perspective of the photo is distorting its shape, and the Rectangular Marquee Tool ends up doing a rather lousy job of selecting it.

I'll press **Ctrl+D** (Win) to remove my failed selection outline. This time, let's try selecting the billboard with the Polygonal Lasso Tool.

I'll grab the Polygonal Lasso Tool from the Tools panel as we saw earlier, then to begin my selection, I'll click in the top left corner of the billboard and release my mouse button. This sets my initial starting point for the selection. I'll move to the top right corner and click to add a second point. Photoshop joins the two points together with a thin straight line. I'll click to add a third point in the bottom right corner, then click to add a fourth point in the bottom left corner, fastening the straight line to each new point as I make my way around the billboard. Again, I'm not holding my mouse button down as I move from point to point. I'm simply clicking to add points, then releasing my mouse button each time:



Figure 3.2.2

If you make a mistake and click to add a point in the wrong spot, there's no need to start over. Just press the **Backspace** (Win) key on your keyboard to undo the last point you added. If you need to undo multiple points, continue pressing **Backspace** (Win) to undo points in the reverse order they were added.

To complete my selection, I'll click back on the initial starting point for the selection in the top left corner of the billboard, then release my mouse button. Photoshop converts all of the straight lines between the points into my selection outline, and as we can see, we were able to do a much better job of selecting the billboard this time:

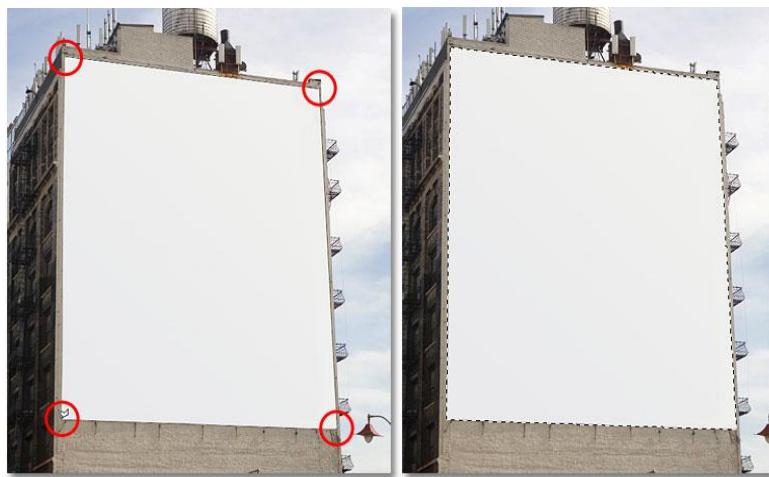
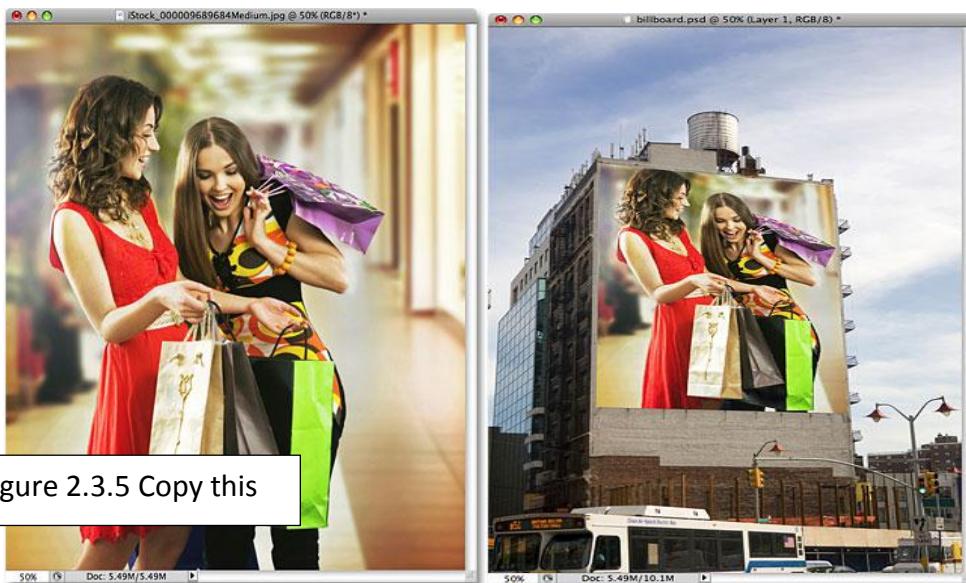


Figure 3.2.3 Connect Edges

Now that the billboard is selected, I'll open up the **selected now** |
press **Ctrl+A** (Win) to quickly select the entire image, then **Ctrl+C** (Win) to copy it to the
clipboard. To add the image to the billboard, I'll switch back over to my original photo, then I'll
go up to the **Edit** menu at the top of the screen and choose the **Paste Into** command.

Figure 3.2.4 Billboard is

This places the second photo directly into the selection, and after a little resizing with Photoshop's Free Transform command, the image appears on the billboard for all to see:



Photoshop's Paste Into command allows us to paste an image directly into a selection

Figure 2.3.5 Copy this

Figure 2.3.6 Copy here image

3.3. Use Pen Tool

The Pen Tool in Photoshop is a versatile tool used for creating precise selections and shapes in an image. It allows you to create paths with anchor points and curved lines, which can then be used to make selections or create shapes. It is used to select any complex selection. It works as Nodes

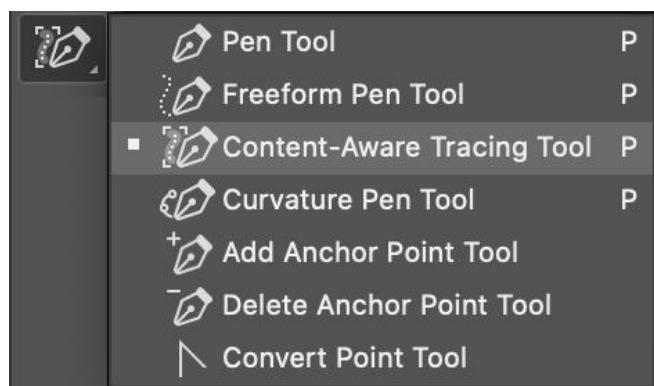


Figure 3.3 Pen Tool

Here are the steps to use the Pen Tool in Photoshop:

- I. Open your image in Photoshop and select the Pen Tool from the toolbar on the left side of the screen. It looks like a pen tip with an anchor point.
- II. Click on the image where you want to start your path. This will create an anchor point.

- III. Move the cursor to the next point of your path and click again. This will create a straight line between the two anchor points.
- IV. Continue adding anchor points and creating straight lines until you have created the desired shape or selection.
- V. To create a curved line, click and drag the cursor to create a Bezier curve. This will create a handle that you can use to adjust the curve of the line.
- VI. To move an anchor point, select the Direct Selection Tool (the white arrow) from the toolbar and click on the anchor point. You can then drag it to a new position.
- VII. To delete an anchor point, select the Pen Tool and click on the anchor point you want to delete. Then press the Backspace/Delete key.
- VIII. Once you have created your path, you can use it to make a selection by going to the Paths panel (Window > Paths) and clicking on the "Load path as a selection" button.
- IX. You can also use your path to create a shape by going to Layer > New Fill Layer > Shape. This will create a new shape layer based on your path.

The Pen Tool in Photoshop takes some practice to master, but it is a powerful tool for creating precise selections and shapes. With a little patience and practice, you can use the Pen Tool to create professional-looking designs and images.

Basic controls of the pen tool:

Photoshop's pen tool has three options: **Create a new work path**, **Create a new shape layer**, and **Fill Pixels**.



Figure.3.3.1 pen tool

We will use the **Create a new work path** option as this is the most commonly used. You can find these options in the top left-hand corner of the Photoshop window. See the image below.



Figure.3.3.2 paths

Just like selection tools, the pen tool has several different options for the resulting path. The most commonly used is “add to path area”. See image below.



Figure.3.3.3 add to path

Take your pen tool and click on a blank canvas similar to what I have done below. Each time you click you **create an anchor point**.

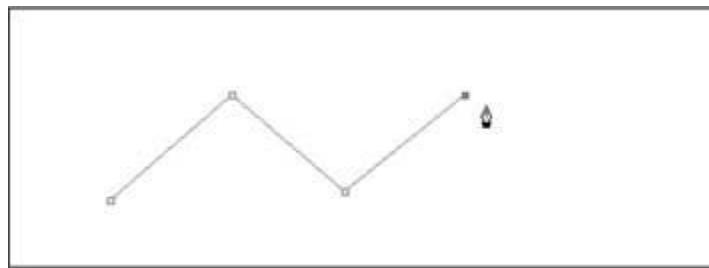


Figure.3.3.4 create anchor point

Hold down Shift, move the mouse and click again. Holding down shift while making an anchor point **creates it in a straight line** with the last anchor point.

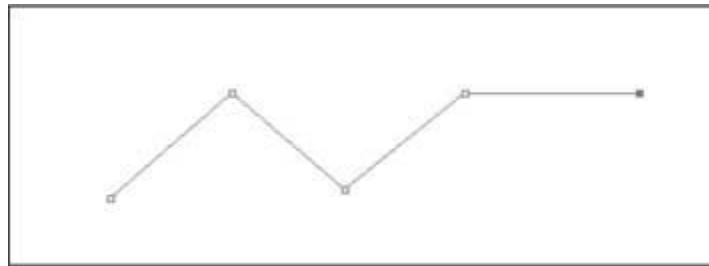


Figure.3.3.5 create in straight line

We can **add** and **delete anchor points** on the path we have created. Right click on the pen tool on the toolbar to reveal further tools. Use the Add and Delete Anchor Point Tool to do just that!



Figure.3.3.6 add anchor point tool

I used the Delete Anchor Point Tool to remove the forth anchor point.

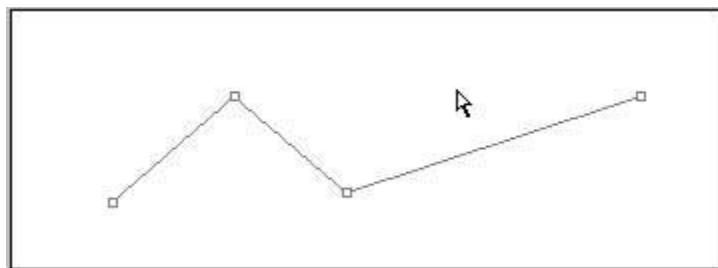


Figure.3.3.7 delete anchor point

Now, let's look at the **Convert Point Tool** for curvature modification and moving anchor points.

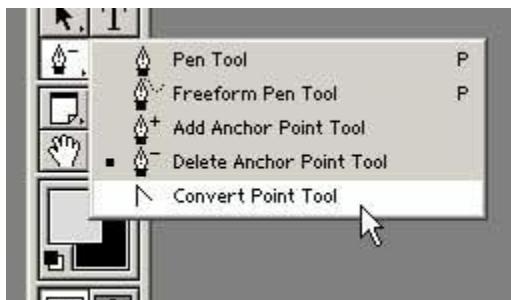


Figure.3.3.8 convert point tool

With the **convert point tool** click and drag on the second anchor point. Without letting go, move the mouse around and see how it affects the curve. The line that is created is called the **Tangent Line**. The tangent line controls the curvature of the curve.

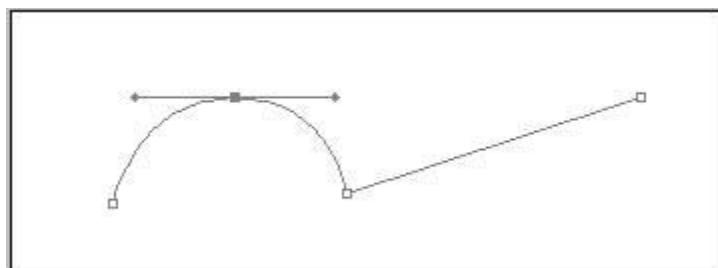


Figure.3.3.9 tangent line

Holding down Ctrl click on the anchor point and move the mouse, see how this allows you to **move the anchor point**.

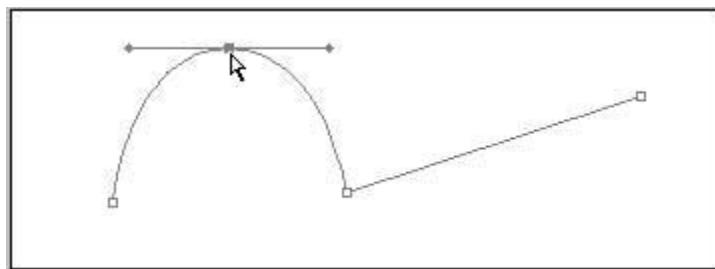


Figure.3.3.10 move the anchor point

Click on one end of the tangent line and drag.

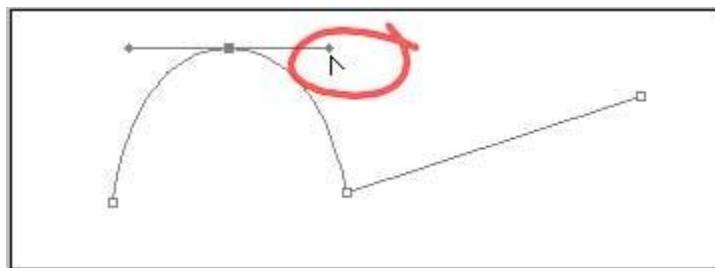


Figure.3.3.11 drag line

This breaks the tangent line in half and creates sharp path changes.

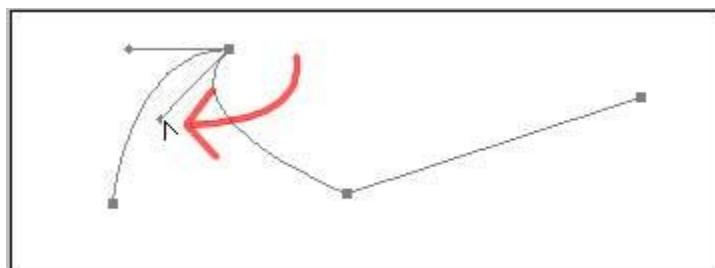


Figure.3.3.12 breaks tangent line

Move the entire path by selecting the Path Component Selection Tool from the toolbar and drag the path to a new location.



Figure.3.3.13 path component selection tool

Delete your path by right clicking on the path and select Delete Path.

3.4. Change Colours with Edit in Quick Mask Mode

Quick Masks allow you to create and edit selections quickly. Although you don't really create an end-product mask, the way you go about getting your selection is "masklike." They're also user-friendly in that they allow you to see your image while you're working. You can begin your Quick Mask by using a selection tool or a painting tool. After you have your Quick Mask, you can edit the mask by using any painting or editing tool.

1. Using any selection tool, select the part of the image you want to change.

2. Click the Quick Mask mode button  in the toolbox.

A colour overlay covers and protects the area outside the selection. Selected areas are left unprotected by this mask. By default, Quick Mask mode colors the protected area using a red, 50% opaque overlay.

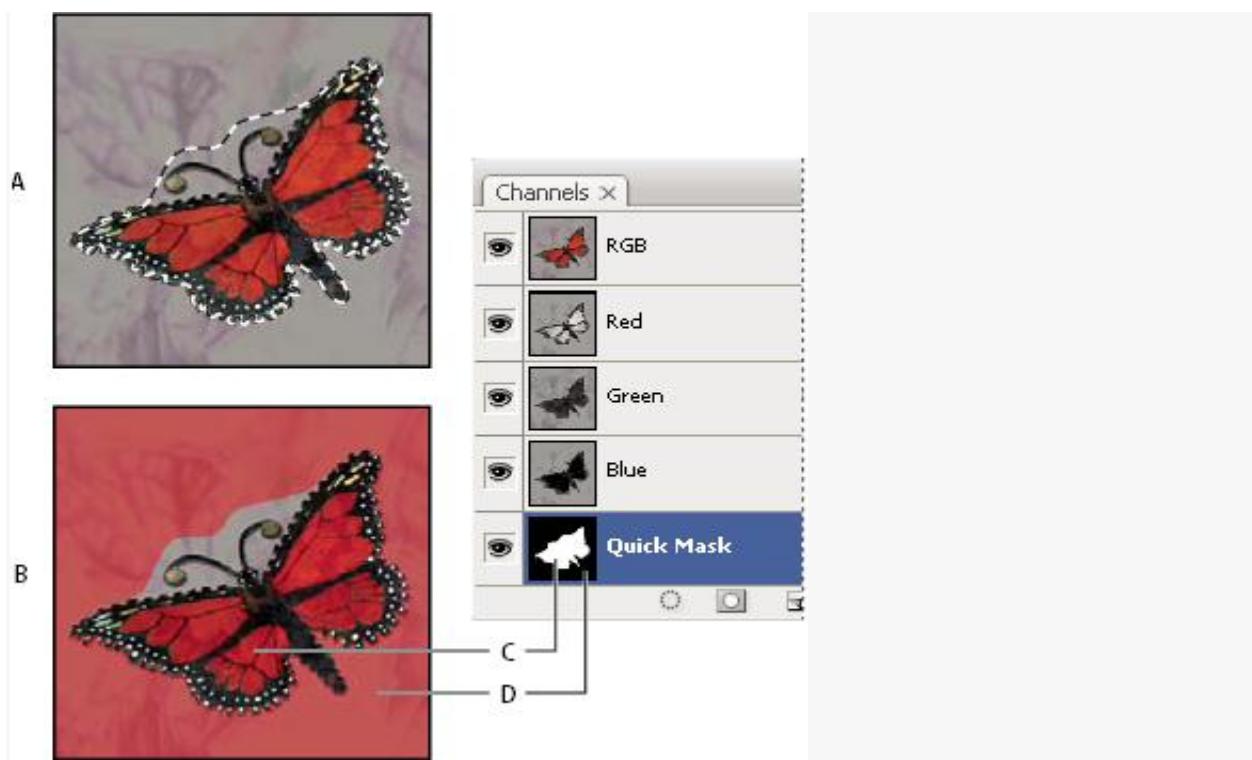


Figure.3.4 Selecting in Standard mode and Quick Mask mode

3. To edit the mask, select a painting tool from the toolbox. The swatches in the toolbox automatically become black and white.
4. Paint with white to select more of an image (the colour overlay is removed from areas painted with white). To deselect areas, paint over them with black (the colour overlay covers areas painted with black). Painting with grey or another colour creates a semi-transparent area, useful for feathering or anti-aliased effects. (Semi-transparent areas may not appear to be selected when you exit Quick Mask mode, but they are.)
5. Click the Standard Mode button  in the toolbox to turn off the quick mask and return to your original image. A selection border now surrounds the unprotected area of the quick mask. If a feathered mask is converted to a selection, the boundary line runs halfway between the black pixels and the white pixels of the mask gradient. The selection boundary indicates the transition between pixels that are less than 50% selected and those that are more than 50% selected.
6. Apply the desired changes to the image. Changes affect only the selected area.
7. Choose Select > Deselect to deselect the selection.

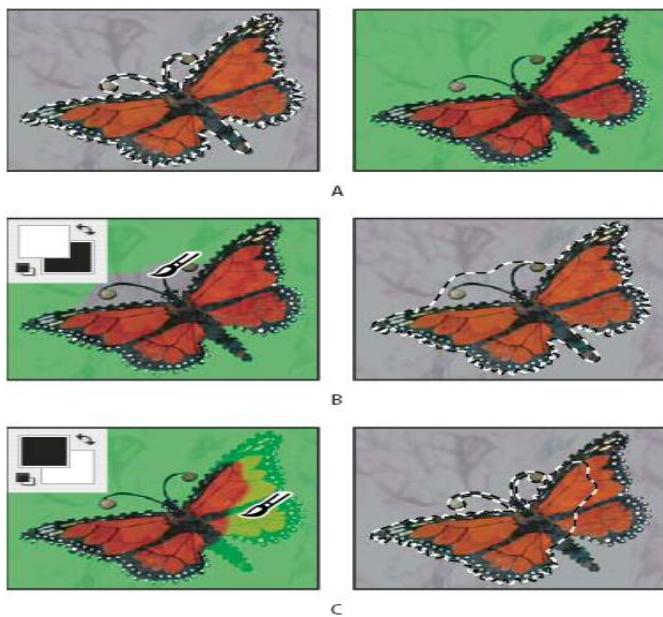


Figure 3.4.1 Deselect to deselect the selection.

3.5. Shinning face

The glowing skin you see in magazine photographs is not just thanks to the studio-quality lighting -- rather, it's the result of a photo retouching process you can replicate yourself using a single layer with a filter applied in Photoshop.

Optionally, you can mask the layer to apply the effect only to parts of the image; because the process darkens the skin somewhat, you may also want to brighten the resulting image after you're done.

To make a face shine in Photoshop, you can follow these simple steps:

- I. Open your image in Photoshop and duplicate the background layer by pressing Ctrl/Cmd + J or by dragging the layer to the "New Layer" icon in the Layers panel.
- II. Select the duplicate layer and go to Filter > Blur > Gaussian Blur. Adjust the radius to create a soft blur effect that still retains the facial details.
- III. Set the blending mode of the blurred layer to "Screen". This will make the image brighter and increase the contrast.
- IV. Add a layer mask to the blurred layer by clicking on the "Add layer mask" icon in the Layers panel. This will allow you to selectively reveal or hide parts of the layer.
- V. Select the Brush Tool and choose a soft brush with a low opacity (around 20-30%). Set the foreground colour to white.
- VI. Paint over the areas of the face that you want to make shine. This will reveal the brightened and blurred layer underneath, creating a glowing effect.
- VII. Adjust the opacity of the blurred layer to fine-tune the effect. You can do this by clicking on the Opacity dropdown in the Layers panel and adjusting the slider.

If necessary, you can also adjust the brightness and contrast of the entire image by going to Image > Adjustments > Brightness/Contrast. Be careful not to overdo it, as this can make the image look unnatural.

That's it! With these simple steps, you can easily make a face shine in Photoshop to create a radiant and glamorous look.



Figure.3.5 Removing the Glow from Parts of the Image

1-Click the "Add Layer Mask" button in the Layers pane. Doing this automatically sets your foreground and background colours to black and white, respectively-Press "B" to switch to the Brush tool and select the "Soft Brush" priest using the drop-down menu in the Options bar.
3-Paint on the layer mask with black to hide the parts of the layer corresponding to areas of the image from which you want to remove the glow effect. For example, you may want to do this for the hair, clothes or eyes of the person in the photo.

3.6 Brightening Face:

Here's an easy way to brighten a face in Photoshop:

- I. Open your image in Photoshop and create a new layer by clicking on the "New Layer" icon in the Layers panel.
- II. Select the Brush Tool from the toolbar on the left side of the screen and choose a soft brush with a size appropriate for the area you want to brighten.
- III. Set the foreground colour to white by pressing the "D" key to reset the default colours, and then pressing the "X" key to switch the foreground and background colours.
- IV. Paint over the areas of the face that you want to brighten. Be careful not to overdo it, as too much brightening can make the image look unrealistic.
- V. Adjust the opacity of the layer to fine-tune the effect. You can do this by clicking on the Opacity dropdown in the Layers panel and adjusting the slider.
- VI. If the brightening effect is too strong in certain areas, you can use the Eraser Tool to remove the effect from those areas. Choose a soft brush and set the opacity of the eraser to a low value, then carefully erase the areas where you want to reduce the effect.
- VII. If necessary, you can also adjust the brightness and contrast of the entire image by going to Image > Adjustments > Brightness/Contrast. Be careful not to overdo it, as this can make the image look unnatural.

That is, it! With these simple steps, you can easily brighten a face in Photoshop to create a more vibrant and appealing image



Figure.3.6 Brightening Face

3.7. Photo retouching

Photo retouching in Photoshop is the process of enhancing or modifying a photo to improve its appearance or correct any flaws. Here are some common techniques used in photo retouching.

- I. **Spot Removal:** This involves removing any blemishes, pimples, or other unwanted spots from the photo. Use the Spot Healing Brush or Clone Stamp tool to remove these imperfections.
- II. **Skin Smoothing:** To smooth out the skin and create a more flawless look, use the Blur tool or the Surface Blur filter to soften the texture of the skin.
- III. **Teeth Whitening:** Use the Lasso tool to select the teeth, then go to Image > Adjustments > Brightness/Contrast to increase the brightness and whiten the teeth.
- IV. **Eye Enhancement:** Use the Dodge and Burn tool to brighten and darken the whites of the eyes, and the Sponge tool to enhance the colour of the iris.
- V. **Colour Correction:** Adjust the colours of the photo to create a more balanced and pleasing look. Use the Hue/Saturation or Colour Balance tools to adjust the colour tones and saturation.
- VI. **Sharpening:** Use the Unsharp Mask filter to sharpen the details in the photo and make it appear crisper and clearer.
- VII. **Resizing and Cropping:** If necessary, resize or crop the photo to improve its composition and overall appearance.

These are just a few of the many techniques used in photo retouching. The key is to use these tools and techniques in moderation, so that the photo looks natural and not overly edited.

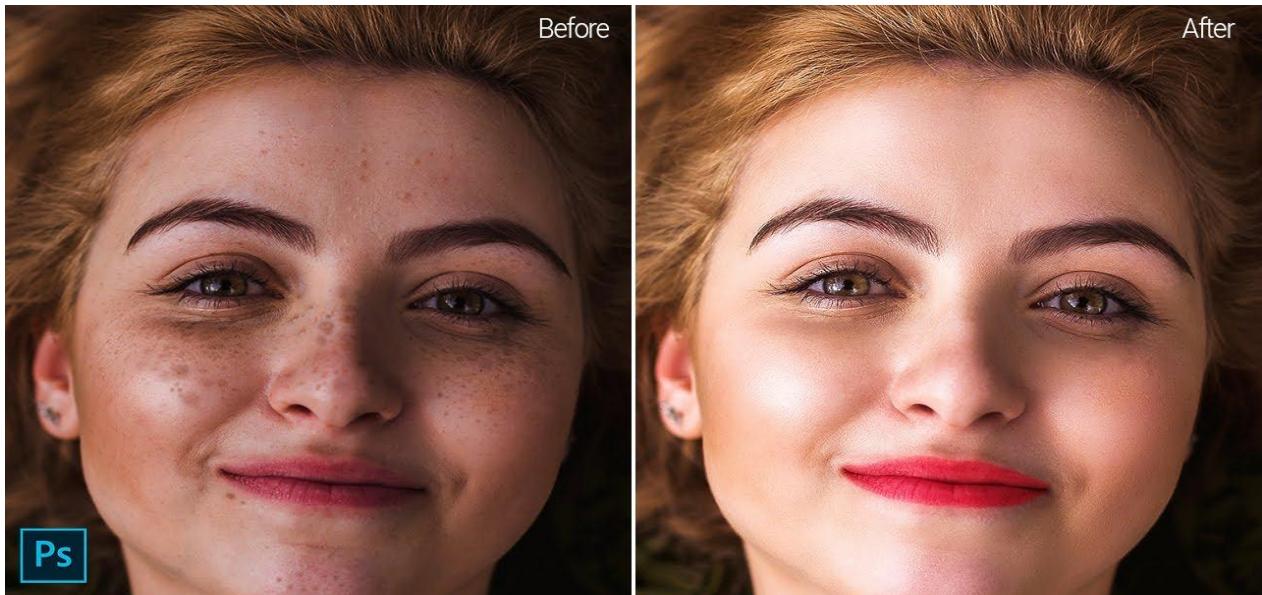


Figure. 3.7. Photo retouching

MULTIPLE CHOICE QUESTIONS

1. The Magic Wand Tool is used for:
a. Select Similar Area b. Select Image c. Select Different Area
d. Select Different Image
2. The shortcut key of Pen tool is:
a.D b. C c. L d. P
3. Which key is used to duplicate the background layer in adobe Photoshop:
a.Ctrl+S b. Ctrl+C c. Ctrl+D d. Ctrl+J
4. Polygonal Lasso tool is used for :
a. Selection of an image b. Blur the image
c. Sharpen the image d. Distorting the Pixels
5. Shortcut key of Polygonal lasso tool:
a.Shift+A b. Shift+P c. Shift+L d. Shift+O
6. Which shortcut key is used to remove the selection in Photoshop:
a. Ctrl+J b. Ctrl+D c. Ctrl+E d. Ctrl+G
7. Basic controls of the Pen tool:
a. Create a new work path b. Create a new shape layer
c. Fill pixels d. All of the above
8. To intersect a new selection from an existing selection in Photoshop:
a.Shift+Alt b. Shift+Ctrl c. Ctrl+Alt d. None of the above
9. To remove a point of selection polygonal lasso tool in Photoshop:
a.Shift b. Ctrl c. Alt d. Backspace
10. For spot removal which tool is used:
a.Clone stamp b.smudge tool c.sponge tool d. burn tool

ANSWERS of MCQs

Q.No.	Answer	Q.No.	Answer
1	a	6	b
2	d	7	d
3	d	8	a
4	a	9	d
5	c	10	a

SHORT QUESTIONS

1. Define Magic wand tool?
2. Define Polygonal Lasso tool?
3. Define Pen tool?
4. How to change colour with edit in Quick mask tool?
5. How to apply shining effect on a picture in Adobe Photoshop?
6. How to apply bighting effect in Adobe Photoshop?
7. What is photo retouching?
8. Define Tolerance?
9. How to remove glow from parts of image?
10. What is Sharpening in photo retouching?

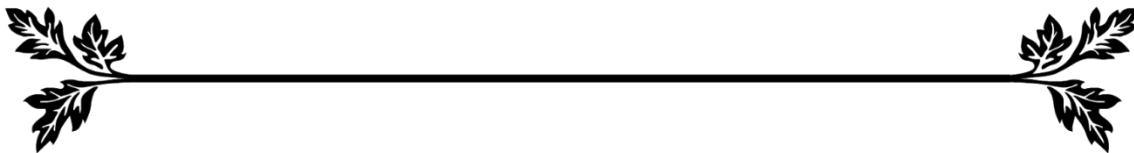
LONG QUESTIONS

1. Describe pen tool in detail?
2. How to change colours with edit in quick mask mode?
3. Write the method of Photo retouching in Photoshop?
4. Describe magic wand tool of Photoshop?

Reference:

1. Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media David Dabner, 2009
2. Mastering Photoshop CC Layers: Professional Strength Photo Editing by Robin Whalley
3. How Do I Do That in Photoshop? By scott kelby

CHEPTER-4



ADVANCED ADOBE PHOTOSHOP

OBJECTIVES

4. Advanced Adobe PhotoShop
- 4.1. Adding Eye Lashes
- 4.2. Use Brush tool
- 4.3. Makeup to a girl
- 4.4. Smudge tool
- 4.5. Filter
- 4.6. Sponge tool
- 4.7. Light Effects on an Image & Cloth
- 4.8. Oil Paint conversion
- 4.9. Convert image into sketch
- 4.10. Glamour Effect
- 4.11. Fabric Folds
- 4.12. Reflections
- 4.13. 3D Box Design
- 4.14. Use pen tool
- 4.15. Layer Style
- 4.16. Gradient Effect
- 4.17. Type Text
- 4.18. Shapes Tool Draw some Shapes on the box and some effects

4.Advanced Adobe PhotoShop

Install any advance version of adobe Photoshop. We will install version cs6 or Photoshop cc for editing the pictures and making the website design.

4.1 Adding the Eye Lashes

Here's a simple process to add eye lashes in Photoshop:

1. Open the image in Photoshop.
2. Create a new layer by going to Layer > New > Layer.
3. Select the Brush tool and choose a soft, round brush.
4. Set the brush colour to black.
5. Paint the lashes along the upper and lower lash line, following the natural curve of the eye.
6. Use the Smudge tool to soften the edges of the lashes and blend them into the skin.
7. Repeat the process for the other eye.
8. Optionally, you can also use the Dodge and Burn tools to further enhance the lashes.
9. Adjust the opacity of the lashes layer to taste.

By following these steps, you can add realistic-looking eye lashes to an image in Photoshop. You can also experiment with different brush sizes, shapes, and colors to create a variety of different lash styles.



Figure.4.1 Adding the Eye Lashes

4.2. Use Brush tool

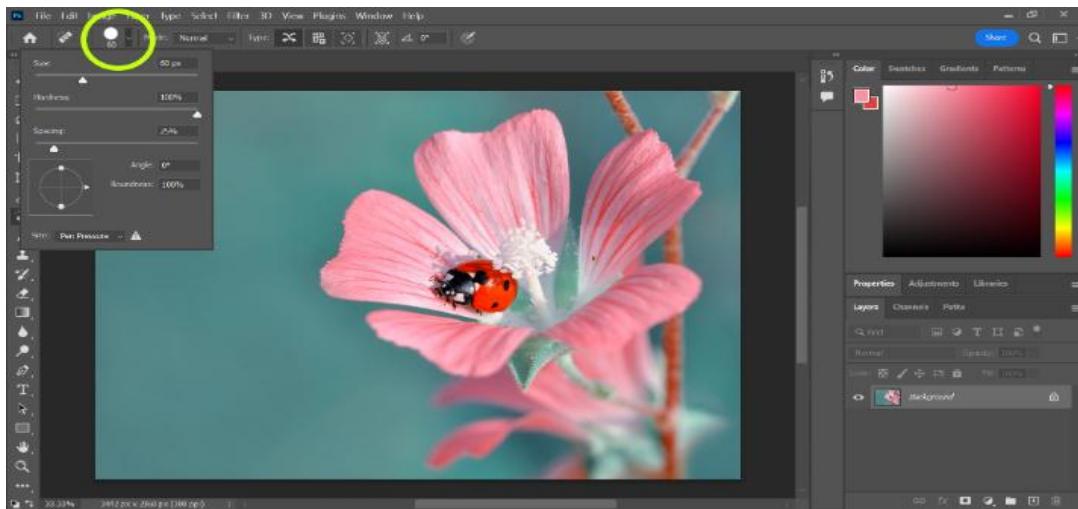


Figure 4.2. Use Brush tool

Shortcut Key: B

Here are the basic steps to use the Brush tool in Photoshop:

- I. Open your image in Photoshop.
- II. Select the Brush tool from the toolbar on the left-hand side of the screen. You can also press "B" on your keyboard to quickly access the Brush tool.
- III. Choose the brush size and style you want to use from the options bar at the top of the screen. You can adjust the brush size, hardness, opacity, and flow.
- IV. Select a color for your brush by clicking on the foreground color swatch in the options bar or pressing "D" on your keyboard to set the default colours (black and white).
- V. Start painting on your image using your mouse or graphics tablet. You can adjust the brush size and opacity as you go along.
- VI. If you make a mistake, you can use the Eraser tool to erase part of your painting or use the History panel to undo your last action.
- VII. When you're finished, save your image by going to File > Save or File > Save As.

These are just the basic steps, but there are many other features and options available with the Brush tool in Photoshop that you can explore as you become more familiar with the software.

Advance Features

The Brush tool in Adobe Photoshop has several advanced features that can be used to achieve more sophisticated results:

- I. **Brush Presets:** You can save custom brush settings as presets and quickly access them from the Brush Preset picker.
- II. **Brush Dynamics:** This feature allows you to control how the brush responds to the pressure and tilt of a graphics tablet or stylus.
- III. **Smoothing:** You can smooth out jagged brush strokes by enabling the Smoothing option in the Brush panel.
- IV. **Transfer:** The Transfer option in the Brush panel allows you to control how colour is applied to the image based on the opacity and flow settings.
- V. **Shape Dynamics:** This feature lets you randomize the size and shape of the brush tip to create natural-looking variations in your brush strokes.
- VI. **Texture:** The Texture option lets you apply a texture to your brush, giving it a more natural feel and look.
- VII. **Dual Brush:** This feature lets you use two different brush tips at once to create interesting and unique effects.



Figure 4.2. 1 Advance Features

These are just a few of the advanced features of the Brush tool in Adobe Photoshop. By using these features, you can take your brushwork to the next level and create professional-quality results.

Opacity:

The Opacity Value is a percentage of transparency, 100% means a full colour stroke, a small percentage means a more transparent painting.

Flow:

The Flow value is a percentage that sets the rate of colour applied. Each time you press the mouse button the amount of colour applied is controlled by the Flow percentage, besides it cannot exceed the Opacity percentage unless you click again in the same place.

4.3 Makeup a girl

Here are some basic steps on how to do makeup on a girl's face using Photoshop:

- I. Open your image in Photoshop.
- II. Create a new layer for your makeup by clicking on the "New Layer" button at the bottom of the Layers panel.
- III. Select the Brush tool from the toolbar on the left-hand side of the screen. Choose a soft brush with a low opacity to create a subtle effect.
- IV. Choose the color you want to use for your makeup by clicking on the foreground color swatch in the options bar. You can also adjust the opacity and flow of the brush to control the intensity of the makeup.
- V. Use the Brush tool to apply makeup to the areas of the face that you want to enhance, such as the eyes, cheeks, and lips. For example, you can use a light pink color to add blush to the cheeks, a dark brown color to define the eyebrows, or a red color to add lipstick to the lips.
- VI. If you make a mistake, you can use the Eraser tool to erase part of your makeup or use the History panel to undo your last action.
- VII. When you're finished, save your image by going to File > Save or File > Save As.

These are just basic steps, and there are many other techniques and tools you can use to create different makeup looks in Photoshop. Experiment with different brushes, colors, and blending modes to create the desired effect.

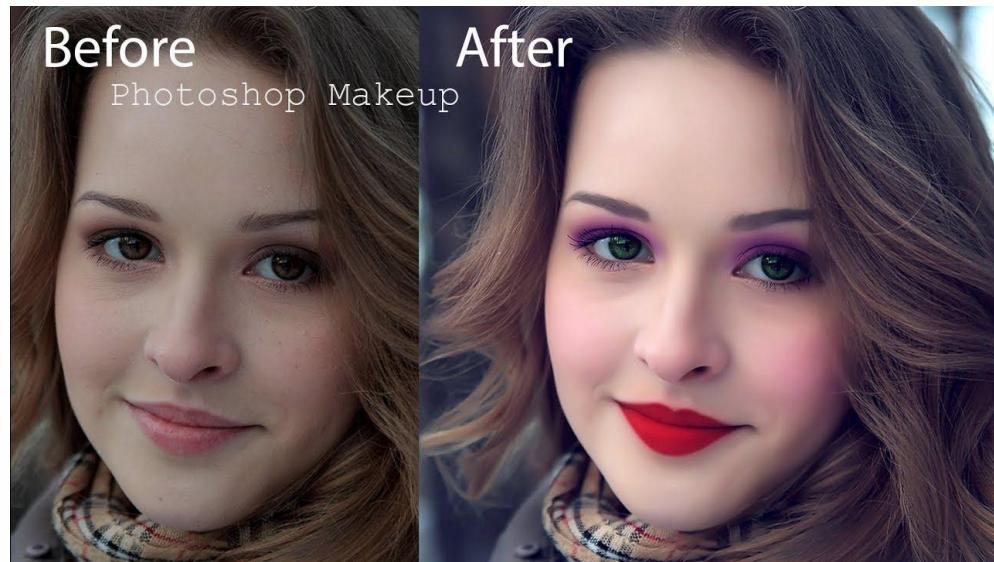


Figure.4.3 Makeup a girl

4.4 smudge tool

The Smudge Tool is a tool in Adobe Photoshop that is used to blend and blur colors in an image to create a smooth, painted effect. It is located in the toolbar on the left-hand side of the screen, and its icon looks like a hand with a finger smudging paint.

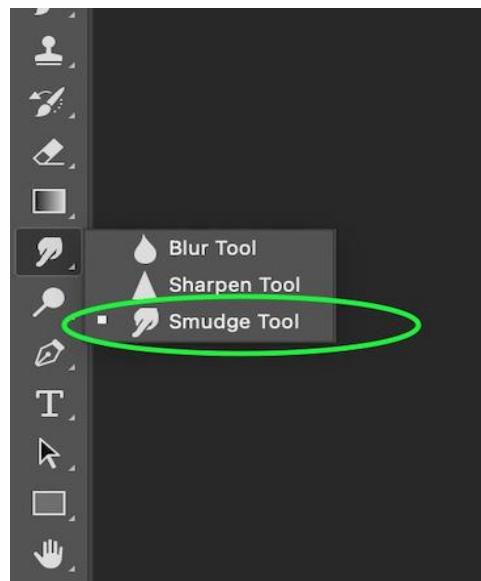


Figure. 4.4 smudge tool

here are the basic steps to use the Smudge Tool in Adobe Photoshop:

- I. Open your image in Photoshop.
- II. Select the Smudge Tool from the toolbar on the left-hand side of the screen.
- III. Choose the brush size and strength you want to use from the options bar at the top of the screen.
- IV. Choose the blending mode you want to use from the options bar. The default blending mode is "Normal," but you can choose other options such as "Darken," "Lighten," or "Color Burn."
- V. Click and drag the Smudge Tool over the area you want to blend or blur. You can move in any direction, but be careful not to overdo it as it can create a distorted or unnatural effect.
- VI. Use different brush sizes and strengths to create different effects on different parts of the image.
- VII. If you make a mistake, you can use the History panel to undo your last action or use the Eraser tool to remove the effect.
- VIII. When you're finished, save your image by going to File > Save or File > Save As.

The Smudge Tool can be a useful tool for creating a painted or blended effect on an image. It can be used to blend colors together to create a smooth transition, soften edges, or add a painterly effect to an image. Experiment with different brush sizes, strengths, and blending modes to create different effects.

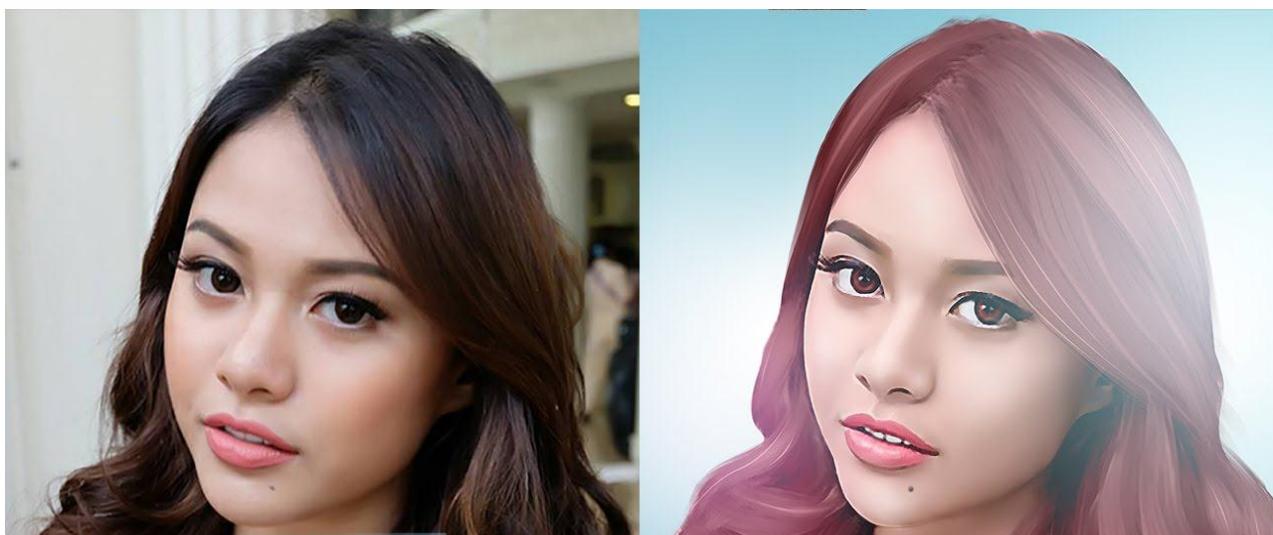


Figure. 4.4.1 smudge tool

4.5 filter

Filters in Photoshop are a set of tools that allow you to apply various effects to an image, including altering its appearance or style. They can be used to enhance an image, create a specific mood, or to make artistic adjustments. Filters can be found under the "Filter" menu at the top of the screen.



Figure. 4.5 filter

Here are some examples of filters in Photoshop:

- I. **Blur Filter:** This filter is used to blur the image or parts of it. It can be used to create a soft, dreamy effect or to remove unwanted details.
- II. **Sharpen Filter:** This filter is used to sharpen the edges and details of the image. It can be used to enhance the overall clarity of the image.
- III. **Artistic Filters:** These filters are used to give the image an artistic effect, such as a painting, pencil sketch or watercolor. They can be used to create a specific mood or to give the image a more unique and creative look.
- IV. **Distort Filters:** These filters are used to distort the image, such as creating a fish-eye lens effect or a perspective warp. They can be used to create interesting and unusual perspectives.
- V. **Noise Filters:** These filters are used to add noise to the image. They can be used to create a vintage look or to simulate the look of film grain.

VI. Lighting Filters: These filters are used to adjust the lighting and color of the image.

They can be used to create a specific mood or to enhance the colors in the image

VII. Gradient Map: The Gradient Map filter allows you to map the tonal range of an image to a gradient. It can be used to create a dramatic and moody effect by applying a gradient map with dark colors to the image.

VIII. Liquify: The Liquify filter allows you to push, pull, and warp an image in various ways. It can be used to adjust the shape of objects, make facial features more prominent, or create surreal distortions.

IX. Lens Correction: The Lens Correction filter is used to correct lens distortion, vignetting, and chromatic aberration in images. It can be especially useful for architectural photography or images that were shot with a wide-angle lens.

X. Render: The Render filter is used to create 3D effects and textures in an image. It includes options for adding lighting, clouds, and other effects to an image to create a more realistic or surreal look.

These are just a few examples of the many filters available in Photoshop. Experiment with different filters to see how they can enhance your images and take your creativity to the next level.

4.6. Sponge Tool

Shortcut Key: O

The Sponge Tool is a tool in Adobe Photoshop that is used to change the saturation of an area in an image. It is located in the toolbar on the left-hand side of the screen, and its icon looks like a sponge.

Here are the basic steps to use the Sponge Tool in Photoshop:

- I. Open your image in Photoshop.
- II. Select the Sponge Tool from the toolbar on the left-hand side of the screen.
- III. Choose the type of Sponge Tool you want to use from the options bar at the top of the screen. There are two types: Sponge Tool and Desaturate Tool. The Sponge Tool increases or decreases the saturation of an area, while the Desaturate Tool removes all of the color from an area.

- IV. Choose the brush size and hardness you want to use from the options bar.
- V. Adjust the saturation of the area by clicking and dragging the Sponge Tool over it. If you want to increase the saturation, select the "Saturate" option in the options bar. If you want to decrease the saturation, select the "Desaturate" option.
- VI. If you make a mistake, you can use the History panel to undo your last action or use the Eraser tool to remove the effect.

The Sponge Tool can be a useful tool for adjusting the saturation of specific areas in an image, such as making a particular color more vibrant or toning down an area that is too bright or garish.

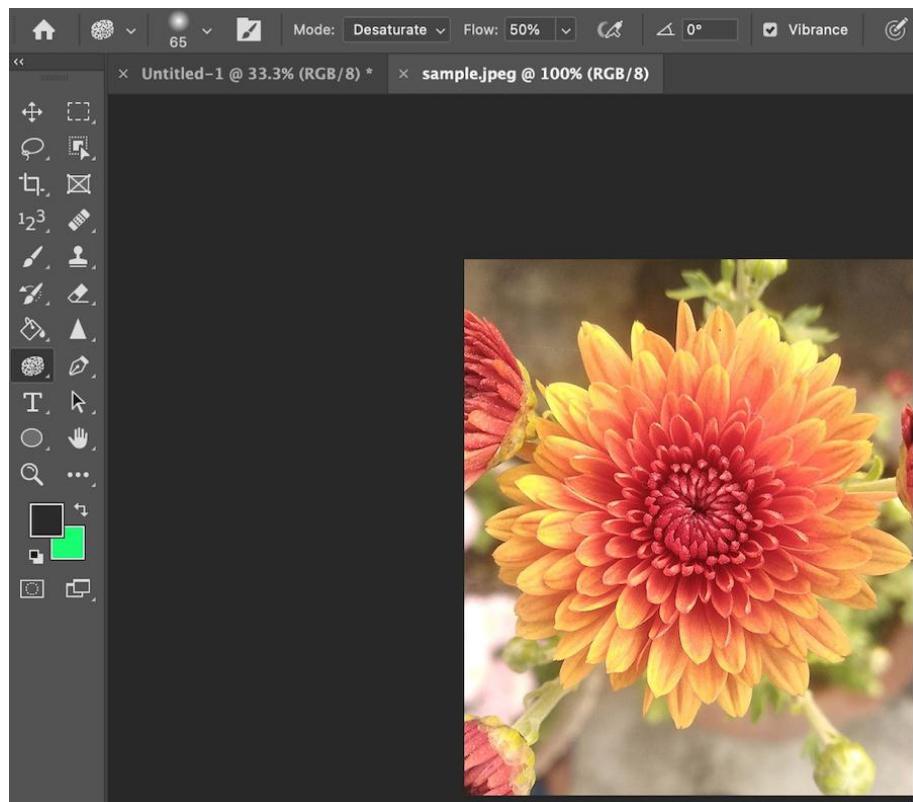


Figure. 4.6 Sponge Tool

Advance Features:

The Sponge tool in Adobe Photoshop doesn't have many advanced features compared to other tools in the program, but here are a few notable options:

- I. **Mode:** The Sponge tool has two modes: "Saturate" and "Desaturate." You can switch between these modes in the Options bar at the top of the screen to either increase or decrease the saturation of the image.
- II. **Flow:** The Flow option in the Options bar controls the rate at which the tool applies changes to the saturation. You can set it to a high value for a more intense effect or a low value for a subtler effect.
- III. **Brush:** You can customize the brush tip and size to achieve the desired effect. You can also choose different brush shapes, hardness, and spacing to achieve a more unique look.

4.7 Light effects on an image and cloth

In Photoshop, you can create light effects on an image and cloth by using various tools and techniques. Here are some steps to help you create light effects:

- I. Open an image in Photoshop.
- II. Create a new layer for the light effect. This will allow you to edit the effect without affecting the original image.
- III. Choose the Brush tool from the toolbar on the left-hand side.
- IV. Select a soft brush from the options bar at the top of the screen.
- V. Choose a color for the light effect, such as white or yellow.
- VI. Paint the light effect onto the image using the brush. You can adjust the opacity of the brush to make the effect more subtle.
- VII. To add depth to the light effect, go to Layer Style and select Inner Glow. Adjust the settings for the Inner Glow to match the light source.
- VIII. You can also use the Dodge tool to brighten specific areas of the image, such as the cloth, to create a lighting effect.

To add a glint or sparkle effect, create a new layer and use the brush tool with a small, hard brush and white color to paint small dots onto the image. You can also use the Pen tool to create shapes that represent reflections or highlights.

These are just a few examples of how you can create light effects in Photoshop. Experiment with different tools and techniques to find the best approach for your image and desired effect.

4.8 Oil paint conversion

If you want to convert a photo to look like an oil painting in Photoshop, here are the steps:

- I. Open your photo in Photoshop.

- II. Duplicate the layer by pressing Ctrl+J (Windows) or Command+J (Mac).
- III. Apply a Smart Filter to the duplicated layer by going to Filter > Convert for Smart Filters.
- IV. Apply the Oil Paint filter by going to Filter > Stylize > Oil Paint. This will open up the Oil Paint dialog box.
- V. Adjust the settings in the Oil Paint dialog box to your liking. You can adjust the sliders for Stylization, Cleanliness, Scale, Bristle Detail, Angular Direction, and Shine.
- VI. Once you've made your adjustments, click OK to apply the filter.
- VII. If you want to adjust the overall look of the painting, you can add adjustment layers such as Levels or Hue/Saturation to the oil painting layer.

That's it! You now have a photo that looks like an oil painting.

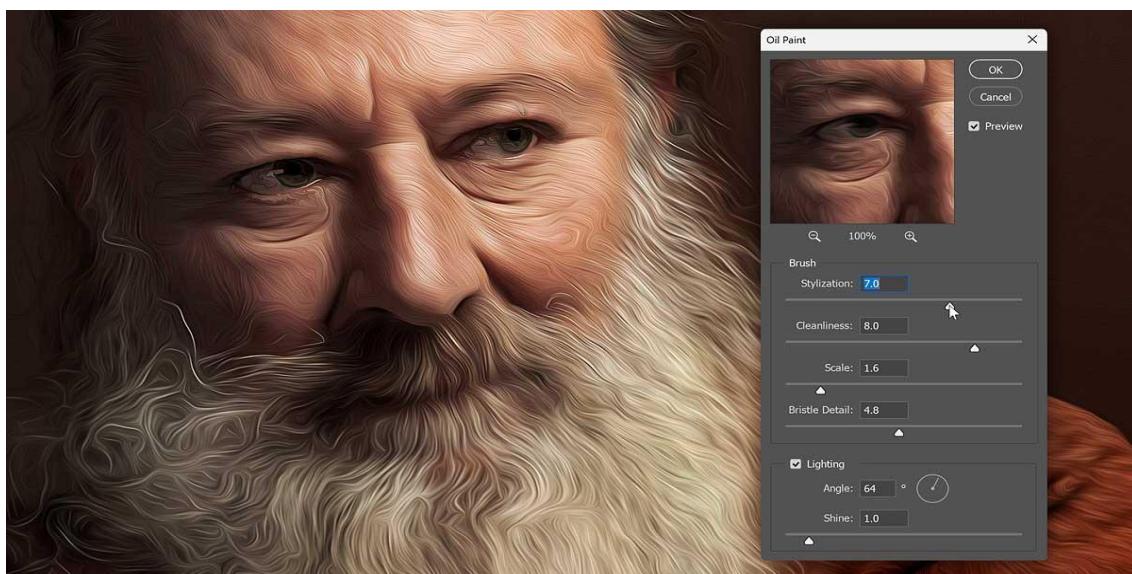


Figure. 4.8 Oil paint conversion

4.9 convert image into sketch

To convert an image into a sketch in Photoshop, follow these steps:

- I. Open your image in Photoshop.
- II. Duplicate the background layer by pressing Ctrl+J (Windows) or Command+J (Mac).
- III. Change the duplicated layer's blend mode to Color Dodge.
- IV. Go to Image > Adjustments > Invert to invert the colors of the layer.
- V. Go to Filter > Blur > Gaussian Blur and apply a small blur (around 1-3 pixels) to the layer. This will smooth out any rough edges.
- VI. Go to Filter > Other > High Pass and adjust the radius to sharpen the details of the sketch. A radius of around 1-3 pixels is usually a good starting point.

- VII. Change the blend mode of the High Pass layer to Linear Light.
 - VIII. Go to Layer > New Adjustment Layer > Levels and adjust the levels to your liking. This will increase the contrast of the sketch.
 - IX. Lastly, you can add a texture or background to give the sketch a more authentic look.
- That's it! You now have a sketch version of your image in Photoshop.



Figure. 4.9 convert image into sketch

4.10 Glamour effect

To create a glamour effect in Photoshop, follow these steps:

- I. Open your image in Photoshop.
- II. Duplicate the background layer by pressing Ctrl+J (Windows) or Command+J (Mac).
- III. Go to Filter > Noise > Add Noise and add a small amount of noise to the duplicated layer. This will give the image a film-like texture.
- IV. Change the duplicated layer's blend mode to Soft Light.
- V. Go to Layer > New Adjustment Layer > Curves and adjust the curve to increase the contrast and brightness of the image. You can also adjust the curve to add a slight S-curve to enhance the skin tones.
- VI. Add a new layer and select the Gradient tool. Choose a radial gradient and set the colors to black and transparent. Drag the gradient from the center of the image to the edges to create a vignette effect.

VII. Add a new layer and select the Brush tool. Choose a soft brush and set the opacity to around 30-50%. Paint over the areas of the image that you want to soften or blur, such as the skin or background.

VIII. Lastly, you can add a texture or background to give the image a more glamorous feel. That's it! You now have a glamour effect on your image in Photoshop.



Figure. 4.10 Glamour effect

4.11 Fabric folds

In Adobe Photoshop, you can create the appearance of fabric folds using a variety of tools and techniques. One common approach is to use the Liquify filter, which allows you to push, pull, and manipulate pixels in an image.

Here are the steps to use the Liquify filter to create fabric folds:

- I.** Open your image in Photoshop and duplicate the layer.
- II.** Go to Filter > Liquify.
- III.** In the Liquify window, select the Forward Warp tool.
- IV.** Adjust the brush size to match the size of the fold you want to create.
- V.** Start to push and pull the pixels in the area where you want the fold to appear.
- VI.** Use the Reconstruct tool to adjust the surrounding pixels and blend the fold into the fabric.
- VII.** Repeat these steps to create additional folds as needed.

When you're satisfied with the result, press OK to apply the changes and close the Liquify window.

You can also create fabric folds using the Clone Stamp tool, the Transform tools, or a combination of multiple techniques. The key is to experiment and find the method that works best for your particular image and desired outcome.

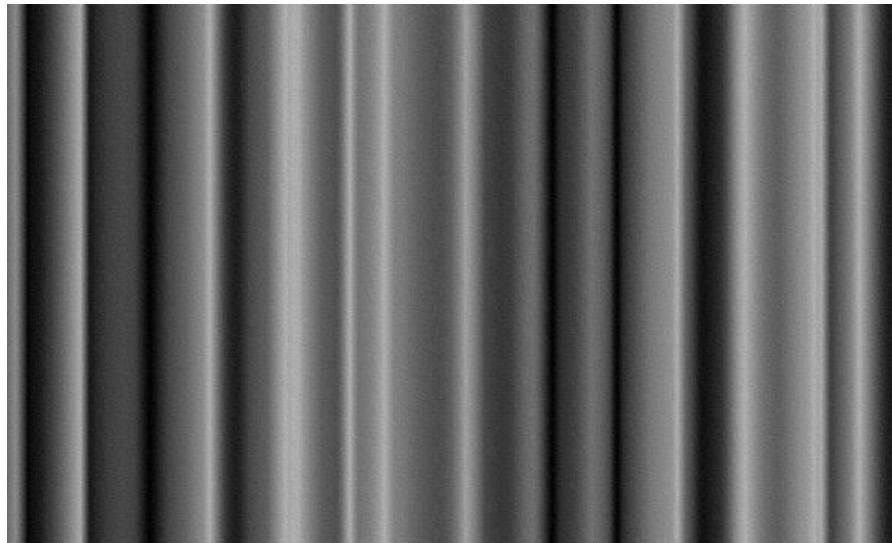


Figure. 4.11 Fabric folds

4.12 Reflections

Reflections in Adobe Photoshop can be created by duplicating an object or text layer, flipping it vertically, and then blending it with the original layer to create a mirror image. This effect can be used to create reflections in water, mirrors, or other reflective surfaces.

Here's a basic outline of the steps to create a reflection in Photoshop:

- I. Duplicate the layer: Right-click on the object or text layer and select "Duplicate Layer." (CTRL + J)
- II. Flip the duplicated layer: Go to "Edit" > "Transform" > "Flip Vertical."
- III. Move the duplicated layer: Use the Move tool to position the duplicated layer directly below the original layer.
- IV. Blend the layers: You can use a variety of blending modes and layer masks to blend the duplicated layer with the original layer to create a realistic reflection.
- V. Adjust the opacity: You can adjust the opacity of the duplicated layer to control the intensity of the reflection.

Example:

You can create a realistic-looking reflection in Adobe Photoshop. You can adjust the position, opacity, and blur of the reflection to make it appear more or less intense as needed.



Figure. 4.12 Reflections

4.13 3D box design

3D box design in Photoshop refers to the process of creating a 3D representation of a box in the software using its built-in 3D tools. The resulting design is a 3D object that can be manipulated in 3D space and rendered as a 2D image.

To create a 3D box design in Photoshop, follow these steps:

- I. Start a new document and create a rectangle using the Rectangle Tool (U)
- II. Right-click the rectangle layer and select "Convert to Shape"
- III. With the shape layer selected, go to 3D > New 3D Extrusion from Selected Layer
- IV. In the Properties panel, adjust the various settings to control the depth and appearance of the box.
- V. To add shading and lighting, go to 3D > Render
- VI. To edit the 3D object, switch to the 3D mode in the toolbar and use the tools in the Properties panel to adjust the position and appearance of the box.

Note: Adobe Photoshop CC 2020 or later version is required to create 3D objects.

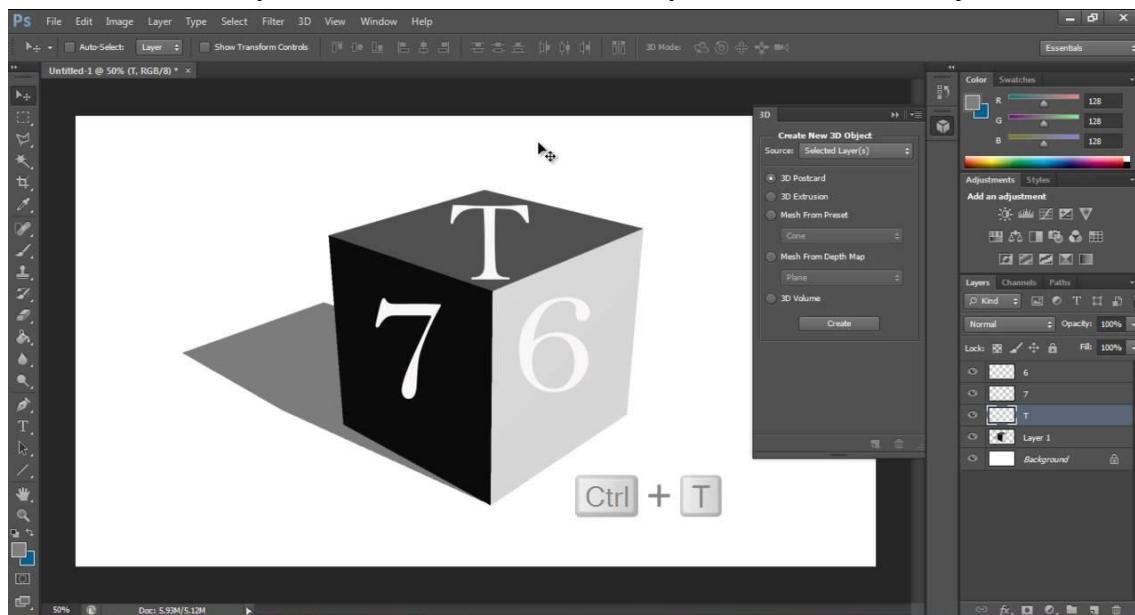


Figure. 4.13 3D box design

4.14 Use pen tool

The Pen tool is a tool in Adobe Photoshop (and other graphics software) used for creating vector shapes and precise selections. It works by creating anchor points and connecting them with lines and curves to form a path. The path can then be filled with color, stroked, or used to create a selection.

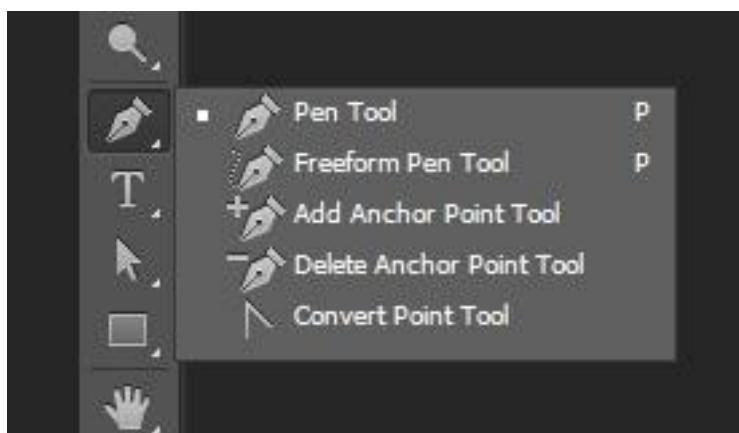


Figure. 4.14 Use pen tool

The Pen tool is a powerful tool in Photoshop used for creating precise selections and shapes. Here is a step-by-step guide on how to use the Pen tool in Photoshop:

- I. Open Photoshop and create a new document or open an existing one.
- II. Select the Pen tool from the toolbar or press "P" on your keyboard.

- III. To create a shape, click on the canvas to create the first anchor point of the shape. Then click at other points where you want to create straight lines, and drag your mouse to create curves. Be sure to click and release to create each anchor point.
- IV. To create a selection, click and drag the Pen tool to create a path around the area you want to select. Then, go to the Paths panel and click "Make Selection" to turn the path into a selection.
- V.

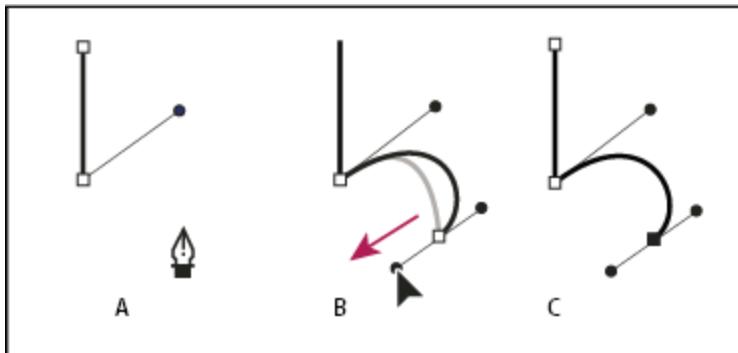


Figure. 4.14.1 Make Selections

- VI. To edit a path, use the Direct Selection tool (A) to select and move individual anchor points or line segments. Use the Convert Point tool (Shift+C) to switch between a straight and curved path.
- VII. To create a custom shape, continue creating the path and close it by connecting the last anchor point to the first one.
- VIII. To fill a shape or selection with color, select the shape or selection and choose a color from the swatches panel. Then, go to Edit > Fill and select "Color" from the dropdown menu.
- IX. To stroke a path or shape, select the path or shape and choose a stroke color and width from the options bar. Then, go to Edit > Stroke and select "Stroke Path" from the dropdown menu.

That's it! These are the basics of using the Pen tool in Photoshop. With practice, you can create more complex shapes and selections with the Pen tool.

Here are some of the uses of the Pen tool in Photoshop:

- I. **Path creation:** The Pen tool can be used to create paths, which are sequences of connected points and lines. Paths can be used to make selections, trace objects, or create custom shapes.

- II. **Object selection:** The Pen tool can be used to make precise selections around an object. By carefully tracing around the object, you can create a path that can be used to cut the object out of its background.
- III. **Shape creation:** The Pen tool can be used to create custom shapes. Once a path is created with the Pen tool, you can use the Path Selection tool to manipulate the shape, or fill it with color using the Paint Bucket tool.
- IV. **Masking:** The Pen tool can be used to create masks in Photoshop, which are used to hide or reveal parts of an image. By creating a path around the object you want to mask, you can then apply the mask to the image layer to hide the rest of the image.

The Pen tool is a powerful and versatile tool in Adobe Photoshop. With a little practice, you can create precise selections, shapes, and paths that can be used to enhance your images.

Example:

By using the Pen tool in Adobe Photoshop, you can create custom shapes that can be used for various design projects, such as logos, icons, and illustrations. The shapes you create with the Pen tool are vector shapes, which means they can be resized and modified without losing quality.

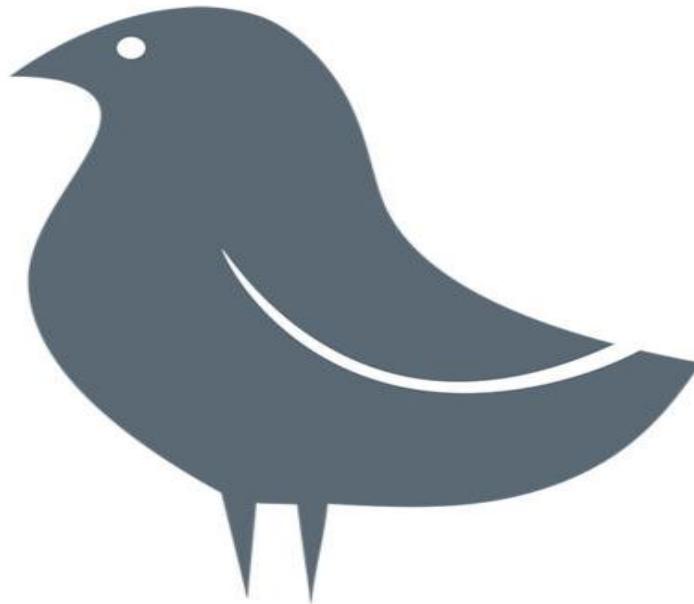


Figure. 4.14.2 custom shape

4.15-layer style

Layer styles in Photoshop are a set of visual effects that can be applied to a layer in order to enhance its appearance. They include effects such as drop shadows, glows, bevels, and more.

Here's how you can use layer styles in Photoshop:

- I. Open the image in Photoshop.
- II. Select the layer that you want to apply the layer style to.
- III. Right-click on the layer and choose "Layer Style" from the context menu.
- IV. In the Layer Style dialog box, you'll see a list of available layer styles.
- V. Choose the layer style that you want to apply. You can also create a custom layer style by adjusting the options for the different effects.
- VI. Adjust the options for the layer style to taste.
- VII. Click OK to apply the layer style to the layer.

You can also apply layer styles to multiple layers at once by selecting them and applying the layer style. Layer styles can be edited or removed at any time by double-clicking on the layer style in the Layers panel.

Layer styles are a powerful tool for adding visual interest to an image and can be used to create a wide range of effects. From simple drop shadows to complex, multi-layered styles, layer styles offer a lot of creative options for enhancing your images in Photoshop.

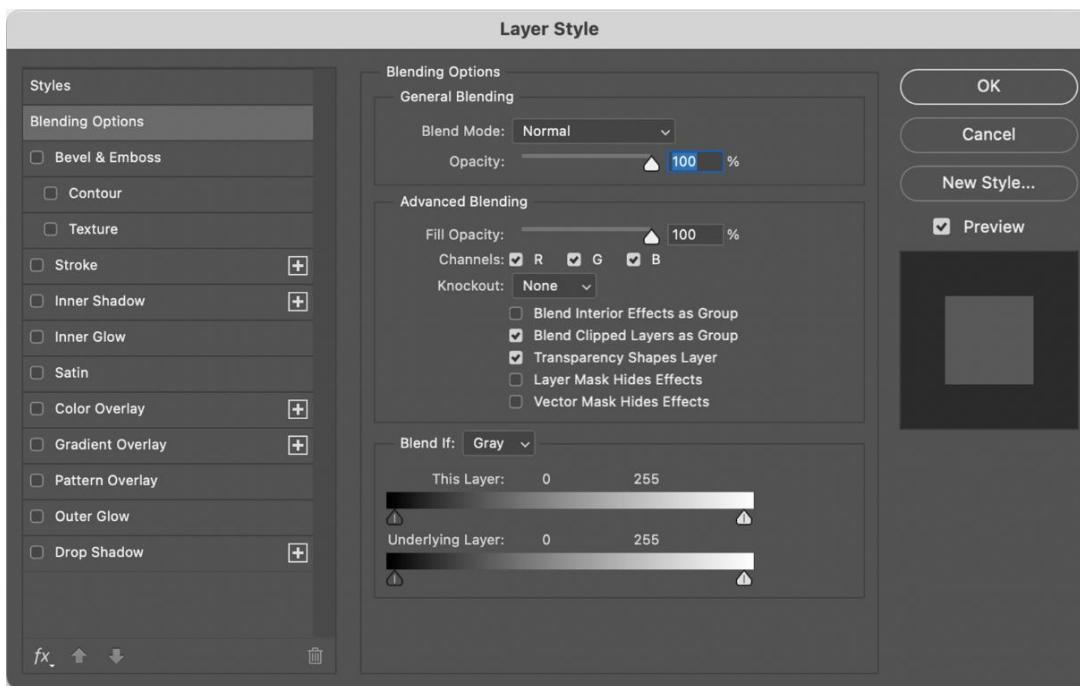


Figure. 4.15-layer style

You can create custom styles using one or more of the following effects:

I. Drop Shadow

Adds a shadow that falls behind the contents on the layer.

II. Inner Shadow

Adds a shadow that falls just inside the edges of the layer's content, giving the layer a recessed appearance.

III. Outer Glow and Inner Glow

Add glows that emanate from the outside or inside edges of the layer's content.

IV. Bevel and Emboss

Add various combinations of highlights and shadows to a layer.

V. Satin

Applies interior shading that creates a satiny finish.

VI. Color, Gradient, and Pattern Overlay

Fills the layer's content with a color, gradient, or pattern.

VII. Stroke

Outlines the object on the current layer using color, a gradient, or a pattern. It is particularly useful on hard-edged shapes such as type.

4.16 Gradient effect

The Gradient effect in Adobe Photoshop is a powerful tool that allows you to create a smooth transition between two or more colors in an image. It can be used to add color to an object, create a background, or to give an image a specific look. Here's how you can use the Gradient tool in Photoshop.

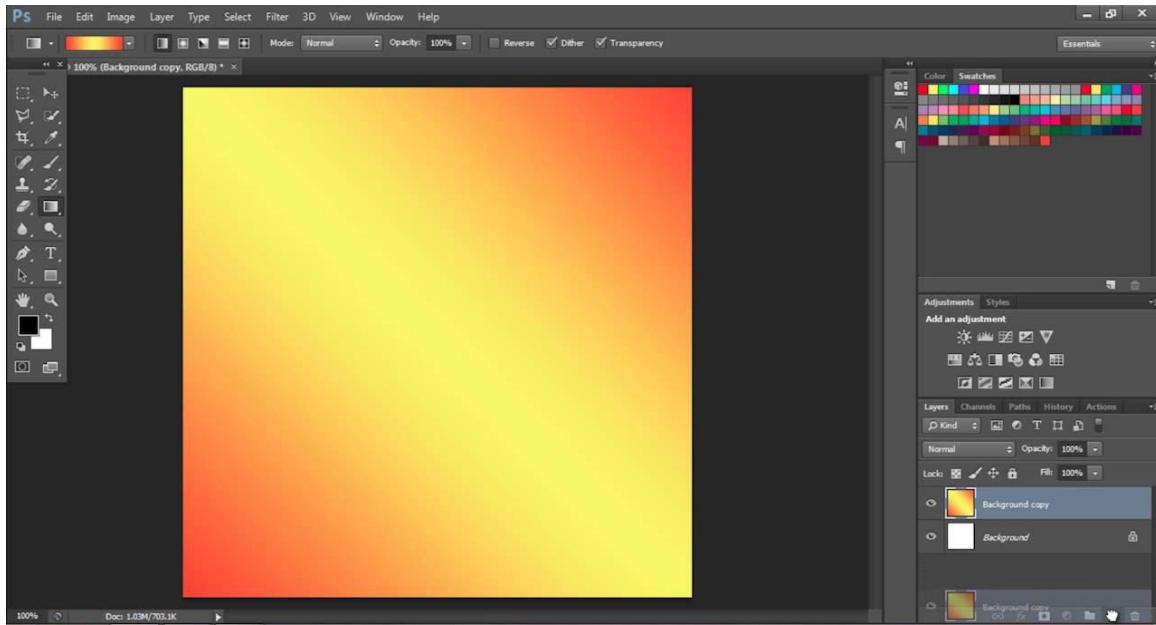


Figure. 4.16 Gradient effect

- I. Select the Gradient tool from the toolbar on the left side of the screen.
- II. Choose the type of gradient you want to use from the options bar at the top of the screen. For this example, let's choose the linear gradient option.
- III. Click on the Foreground color in the toolbar and choose the first color you want to use for the gradient.
- IV. Click on the Background color and choose the second color you want to use for the gradient.
- V. Click and drag the gradient tool in the image to apply the gradient. You can adjust the direction of the gradient by continuing to drag the mouse.
- VI. Release the mouse button when you are happy with the gradient.
- VII. To adjust the opacity of the gradient, go to the Layers panel, select the layer with the gradient, and use the Opacity slider to reduce or increase the opacity as desired.

That's it! Now you know how to use the Gradient tool in Adobe Photoshop in a simple and straightforward way.

4.17 Type text

- I. **Select the Type tool:** Select the Type tool from the toolbar or press the "T" key on the keyboard. Select either the Horizontal or Vertical Type tool from the Tools panel, or press T to select the type tool if the one you want is active.
- II. **Choose a font:** Go to the Options bar at the top of the screen and choose a font, size, and color for your text.
- III. **Add the text:** Click on the image and start typing. You can also click and drag to create a text box of a specific size.
- IV. **Format the text:** You can format the text by adjusting the font size, color, and style. You can also align the text and change the spacing between lines and letters.
- V. **Transform the text:** You can transform the text by using the Transform tool. Go to "Edit" > "Free Transform" or press "Ctrl+T" (Windows) or "Cmd+T" (Mac), then adjust the size and orientation of the text.

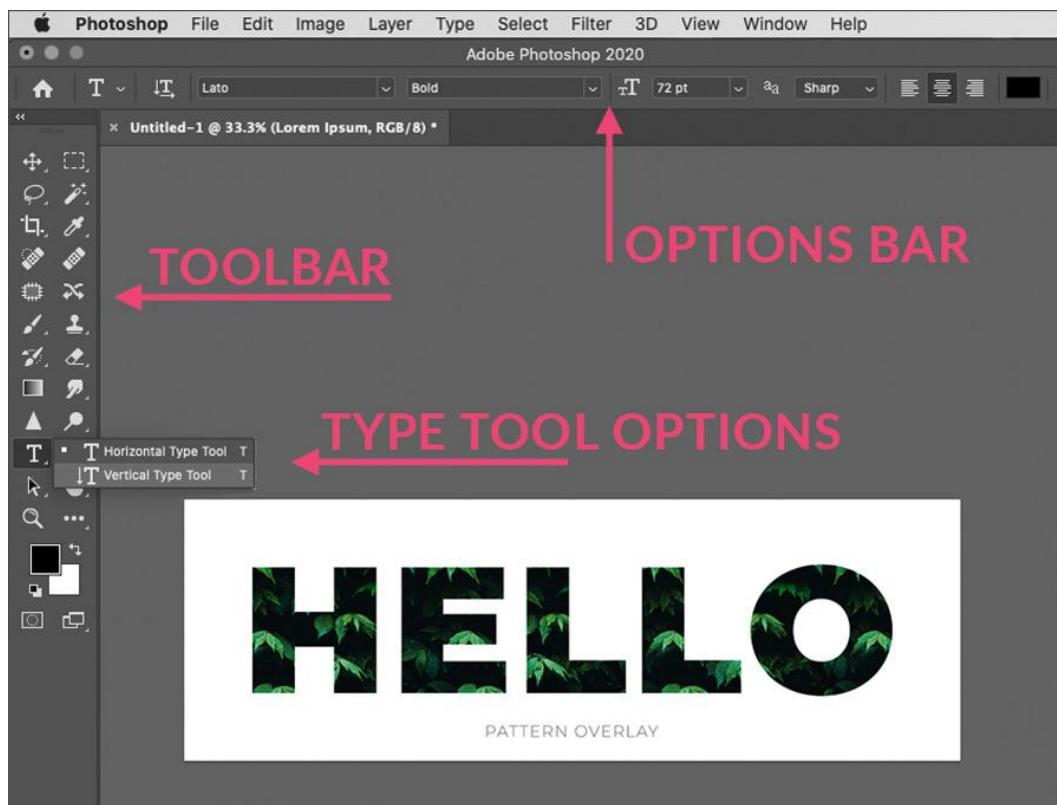


Figure. 4.17 Type text

Shortcut: T

Example:

By using the Type tool in Adobe Photoshop, you can easily add text to an image and format it to match your design needs. Whether you're creating a meme, a graphic design project, or a social media post, the Type tool is a powerful tool for adding text to your images.

4.18. Shapes Tool, Draw shapes in Photoshop

- I. Select a shape tool or a Pen tool. Make sure Shape is chosen from the menu in the options bar.
- II. To choose the color of the shape, click the color swatch in the options bar, and then choose a color from the Color Picker.
- III. (Optional) Set tool options in the options bar. Click the inverted arrow next to the shape buttons to view additional options for each tool.
- IV. (Optional) To apply a style to the shape, select a preset style from the Style pop-up menu in the options bar.
- V. Drag in your image to draw a shape:
- VI. To constrain a rectangle or rounded rectangle to a square, to constrain an ellipse to a circle, or to constrain the line angle to a multiple of 45 degrees, hold down Shift.
- VII. To draw from the centre out, position the pointer where you want the centre of the shape to be, press Alt (Windows) or Option (Mac OS), and then drag diagonally to any corner or edge until the shape is the desired size.

You can draw separate shapes on a layer, or use the Add, Subtract, Intersect, or Exclude options to modify the current shape on a layer.

- I. Select the layer to which you want to add shapes.
- II. Select a drawing tool and set tool-specific options.
- III. Choose one of the following in the options bar:

Add To Shape Area

Adds the new area to the existing shapes or path.

Subtract From Shape Area

Removes the overlapping area from the existing shapes or path.

Intersect Shape Areas

Restricts the area to the intersection of the new area and the existing shapes or path.

Exclude Overlapping Shape Areas

Excludes the overlap area in the consolidated new and existing areas.

Draw a custom shape

You can draw custom shapes by using shapes from the Custom Shape pop-up panel, or save a shape or path to use as a custom shape.

- ⇒ Select the Custom Shape tool. (If the tool isn't visible, hold down the Rectangle tool near the bottom of the toolbox.)
- ⇒ Select a shape from the Custom Shape pop-up panel in the options bar.
- ⇒ If you don't find a shape you want in the panel, click the arrow in the upper-right corner of the panel, and choose a different category of shapes. When asked to replace current shapes, click either replace to view only the shapes in the new category or Append to add to the shapes already displayed.
- ⇒ Drag in your image to draw the shape.

MULTIPLE CHOICE QUESTIONS

1: Pen tool in adobe Photoshop is used to create?

- (a) Precise selections (b) Path (c) Both a and b (d) None of these

2: Pen tool is used for task such as?

- (a) Cutting objects from background (b) Create custom shapes
(c) Making selections (d) all of these

3: Short cut key of pen tool?

- (a) Ctrl+p (b) Shift+p (c) P (d) alt+p

4: Short cut key of text tool?

- (a) alt+t (b) Ctrl+t (c) Shift+t (d) T

5: Create a glamour effect in Photoshop use a combination of?

- (a) Adjustments (b) Filters (c) Brushes (d) all of these

6: Spot healing brush tool or clone stamp tool is used to remove?

- (a) Blemishes from the skin (b) Wrinkles from the skin
(c) Imperfections from the skin (d) all of these

7: Layer style include effects?

- (a) Drop shadow (b) Glows (c) Bevels (d) all of these

8: Gradient effect is the combination of?

- (a) Two or more colors (b) Two or more effects (c) Two or more tools
(d) Both b and c

9: Select the background color short cut key is?

- (a) Ctrl+backspace (b) Shift+backspace (c) alt+ctrl+backspace
(d) alt+backspace

10: Select the background color short cut key is?

- (a) alt+backspace (b) Shift+backspace (c) Ctrl+backspace
(d) alt+ctrl+backspace

11: In Photoshop shape tool is used to draw?

- (a) Gradient effect (b) Glamour effect (c) Various shapes

(d) Fabric folds

12: To add effects to the shape go to the?

- (a) Layer panel (b) Layer style (c) Filter (d) 3D box designing

13: In Photoshop you can create appears of fabric folds use?

- (a) Variety of tools (b) More techniques (c) A and b (d) None of these

14: Create fabric fold use the?

- (a) Clone stamp tool (b) Transform tool (c) Combination of multiple techniques
 (d) all of these

15: Reflection in adobe Photoshop is used to create?

- (a) Duplicate an object (b) Create mirror image (c) Flip the image vertically
 (d) All of these

Answer of MCQs

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	c	6	d	11	c
2	d	7	d	12	b
3	c	8	a	13	C
4	d	9	a	14	d
5	d	10	a	15	d

SHORT QUESTIONS

Q1: Define reflection tool?

Q2: How to create reflection in Photoshop?

Q3: Use of pen tool in Photoshop?

Q4: How to type text in Photoshop?

Q5: Define glamour effect?

Q6: Define layer style?

Q7: Define 3D box?

Q8: What is gradient effect in Photoshop?

Q9: Define shape tool in Photoshop?

Q10: How to create fabric folds?

Q11: How to convert an image into a sketch?

Q12: Define pen tool?

Q13: How many type of type text in Photoshop?

Q14: How to rotate object in Photoshop?

Q15: How many modes of Sponge Tool in Photoshop?

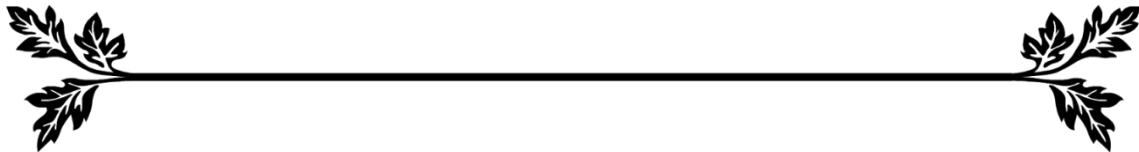
LONG QUESTION

1. Define filter in Photoshop and describe any 8 types of filters?
2. Write the method of creating 3D box in Photoshop?
3. Define Shapes Tool and how Draw shapes in Photoshop?
4. Define Sponge Tool and smudge tool in details?

Reference:

4. Graphic Design School: A Foundation Course for Graphic Designers Working in Print, Moving Image and Digital Media David Dabner, 2009
5. Mastering Photoshop CC Layers: Professional Strength Photo Editing by Robin Whalley
6. How Do I Do That in Photoshop? By scott kelby

CHAPTER 5



ADOBE PHOTOSHOP_

DESIGNING WEBSITE

OBJECTIVES

- 5.1. Web site Design
- 5.2. Project Web site Design

5.1 Web site design

Designing a website in Photoshop involves several steps. Here is a general overview of the process:

1. Understand the Purpose and Audience:

Before starting the design, it's important to understand the website's purpose and the target audience. This helps in creating a design that is both functional and visually appealing.

2. Sketch the Design:

Start by sketching out the basic layout of the website. This includes the placement of the header, footer, content, images, and other elements.

3. Choose Colors and Fonts:

Choose a color scheme and font that match the website's purpose and audience. Keep in mind the readability of the text and the contrast between the text and the background.

4. Create a Wireframe:

A wireframe is a visual representation of the website's structure. It shows the placement of elements on the page and their relationship to one another. This step helps in identifying any design flaws and making adjustments before moving on to the final design.

5. Start the Design:

Use Photoshop to create the design of the website. Start by creating a new document and setting the dimensions of the design. Then, use the pen tool, shape tools, and other tools in Photoshop to create the layout of the website.

6. Add Text and Images:

Once the layout is complete, add the text and images to the website design. Use the font and color scheme chosen earlier to create a cohesive design.

7. Create Interactions:

Add interactive elements such as buttons, links, and hover effects to the design. This step helps in creating a more engaging user experience.

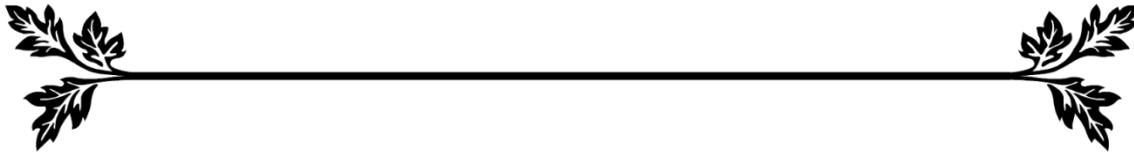
8. Export the Design:

Once the design is complete, export the images in the appropriate format for the web. This may include exporting the images as JPEG or PNG files.

5.5. Project web site design

Design website pages using Adobe Photoshop

CHEPTER-6



INTRODUCTION TO CORELDRAW

OBJECTIVES

- 6.Introduction to Corel draw
- 6.1. What is CorelDRAW?
- 6.2. Kind of Designing
- 6.3. Kind of Media
- 6.4. Pick Tool Overview
- 6.5. Reshaping objects using Nodes
- 6.6. Aligning Objects
- 6.7. The duplicate command
- 6.8. Welding objects, Trimming objects
- 6.9. Intersecting objects
- 6.10. Simplify and Back Minus Front — Front Minus Back
- 6.11. Smudge Brush
- 6.12. Roughen Brush
- 6.13. Crop Tool
- 6.14. Knife and Erase
- 6.15. Virtual segment Delete
- 6.16. Convert outline object

6. Introduction to Corel draw

CorelDRAW is used by designers, illustrators, and artists in a wide range of industries, including advertising, marketing, publishing, and graphic design. It is available for both Windows and Mac operating systems.

6.1 What is CorelDraw?

CorelDRAW is a vector graphics editor and design software developed and marketed by Corel Corporation. CorelDRAW was first created in 1987. It is commonly used for creating graphics, illustrations, logos, brochures, and other marketing materials.

CorelDRAW allows users to create vector graphics, which are images created with mathematical equations rather than pixels. This means that vector images can be scaled up or down without losing quality, which makes them ideal for logos and other designs that need to be used at different sizes.

In addition to vector graphics, CorelDRAW also includes tools for working with text, images, and colors. Users can create complex layouts and designs, add special effects and filters, and export their work in a variety of file formats.

6.2 Kinds of designing

Types of Designing in graphic designing:

There are many types of designing in graphic designing. Here are some of the most common ones:

6.2.1. Logo Design: This involves creating a unique visual symbol that represents a brand or business.

6.2.2. Brand Identity Design: This includes creating a visual system that defines a brand's identity, including its logo, color scheme, typography, and other visual elements.

6.2.3. Packaging Design: This involves creating the visual design for product packaging, including the graphics, colors, and typography.

6.2.4. Web Design: This includes creating the visual design of websites, including the layout, typography, and graphics.

6.2.5. Print Design: This includes creating designs for printed materials such as brochures, flyers, and posters.

6.2.6. User Interface Design: This involves designing the user interface for digital products such as mobile apps and websites.

6.2.7. Motion Graphics Design: This includes creating animations and visual effects for videos, films, and other digital media.

These are just a few examples of the many different types of designing in graphic design. Depending on the project or task at hand, a graphic designer may specialize in one or several of these types of design.

6.3 kinds of Media

Media is the term we use to refer to different types of media that provide us with important information and knowledge. Media has always been part of our society, even when people used paintings and writings to share information.

As time passed, people came up with different modes to provide news to the public. Based on the type of medium, their role may be different, but they all exist to communicate to the audience and affect their perceptions. Today, we don't have to travel oceans or wait for a pigeon to get the latest news.

Different Types of Media:

The goal of media is to convey an advertising message to the audience through the most appropriate media channel for their product.

In general, you can classify media in three main categories.

6.3.1. Print Media

This type of news media used to be the only way of delivering information to the public. For the generations of the 80s and 90s, print media was the only media of entertain. People relied on newspapers and magazines to learn everything, from recipes and entertainment news to important information about the country or the world. Print media includes:

- **Newspapers** – printed and distributed on a daily or weekly basis. They include news related to sports, politics, technology, science, local news, national news, international news, birth notices, as well as entertainment news related to fashion, celebrities, and movies. Today's parents grew up with this type of printed media.
- **Magazines** – printed on a weekly, monthly, quarterly, or annual basis. It contains information about finance, food, lifestyle, fashion, sports, etc.
- **Books** – focused on a particular topic or subject, giving the reader a chance to spread their knowledge about their favorite topic.
- **Banners** – used to advertise a company's services and products, hung on easily-noticed sights to attract people's attention.
- **Billboards** – huge advertisements created with the help of computers. Their goal is to attract people passing by.
- **Brochures** – a type of booklet that includes everything about one company – its products, services, terms and conditions, contact details, address, etc. They are either distributed with the newspapers or hand over to people.

- **Flyers** – used mostly by small companies due to the low cost of advertising. They contain the basic information about a company, their name, logo, service or product, and contact information, and they are distributed in public areas.

6.3.2. Broadcasting Media

Broadcasting media includes videos, audios, or written content that provides important or entertaining information shared by different methods:

- **Television** – in the past, there were a few channels sharing various types of content, whereas now we have hundreds of TV channels to choose from. Each channel delivers a different type of content, so you have a separate channel for news, drama, movies, sports, animation, nature, travel, politics, cartoon, and religion. It's the number one broadcasting media due to its reach to the audience.
- **Radio** – uses radio waves to transmit entertaining, informative, and educative content to the public. Due to its high reach to the audience, radio is widely used for advertising products and services. Radio is one of the oldest means of entertainment, and today people often hear it to find out the weather and traffic while commuting.
- **Movies** – film, motion picture, screenplay, moving picture, or movie has world-wide reachability. It's the best type of mass media to promote cultures and spread social awareness. Movies have always played a huge part in the entertainment world.

6.3.3. Internet Media

Nowadays, we are relying on the Internet to get the news a lot more often than traditional news sources. Websites provide information in the form of video, text, and audio. We can even choose the way we want to receive the news. Types of Internet media include:

- **Social networks or websites** – including Facebook, Instagram, Twitter, YouTube, Tumblr, LinkedIn, Snapchat, Quora, Reddit, Pinterest, etc. They are user-friendly and widely used by people around the world. Although we can find any news here, they may be misleading because of the lack of regulations on the content shared.
- **Online forums** – an online place where we can comment, message, or discuss a particular topic. Forums allow us to share knowledge with other people with the same interest. That's why it's regarded as the best platform to seek support and assistance.
- **Podcast** – a series of audios focused on a particular topic or theme. We can listen to them on a computer or a mobile phone. It's a platform that allows anyone to share their knowledge and communicate with the world. You can browse some podcast hosting sites to see what fits your needs best.

Interface of CorelDraw

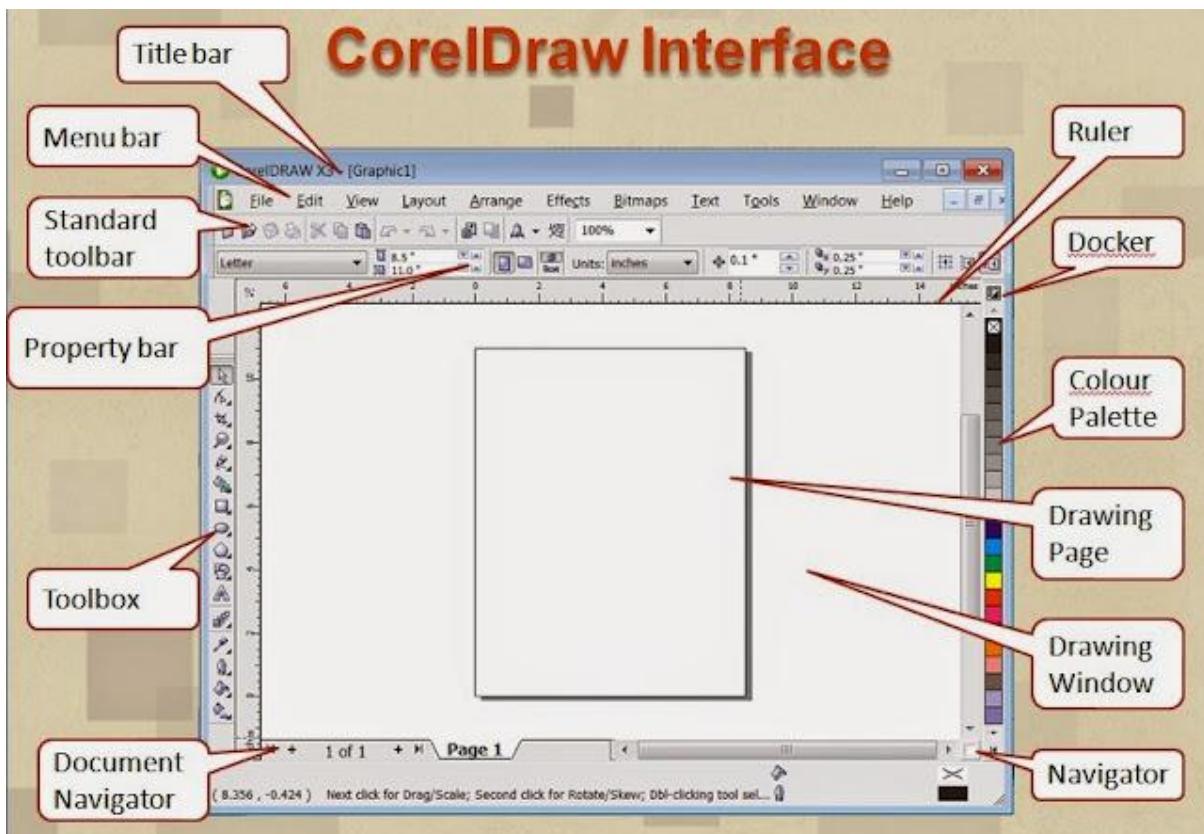


Figure.6 Interface of CorelDRAW

Components of CorelDraw Environment (window)

When we open the CorelDraw then we have found following elements.

Standard Toolbar

Standard toolbar consist on the standard option icons just like save , copy , cut .You can also customize this Toolbar.

Property Bar

When we select any tools in CorelDraw then the property option related with this tool appear in this bar. This enables you to access commands that are specific to the current tool.

Tool Box

This tool bar consists many tools which provide different function in CorelDraw.

Rulers

The Rulers is showing the height and width of the page and also help to create another object in Corel page.

Color Palette

The Corel Color Palette by default is located to the right of the work window is easy and quick way to apply the color of any object.

Status Bar

Basically, Status Bar always is used to give you information in any application. In CorelDraw it has same feature and also talks about the cursor movements or symbol properties such as the fill or size.

Page Navigator

When we create multiple pages then page selector is used move between pages. We can also add the pages through this option.

Dockers Tabs

Dockers allow access to effects, styles, colors, and many other features of CorelDRAW. They can be added or remove through the window menu.

Overview of toolbox of CorelDraw

The toolbox contains tools for drawing and editing images. Some of the tools are visible by default, while others are grouped in flyouts. Flyouts open to display a set of related CorelDRAW tools. A small flyout arrow in the lower-right corner of a toolbox button indicates a flyout. You can access the tools in a flyout by clicking the flyout arrow. After you open a flyout, you can easily scan the contents of other flyouts by hovering over any of the toolbox buttons which have flyout arrows. Flyouts function like toolbars when you drag them away from the toolbox. This lets you view all the related tools while you work. CorelDRAW Toolbox and its Functions are mentioned as follows.

	Pick tool - Select, position, or transform objects.
	Freehand Pick tool - Select objects by using a freehand selection marquee. Position and transform objects.
	Shape tool (F10) - Edit a curve object or text character by manipulating nodes.
	Smudge Brush tool - Change the shape of an object by dragging along its outline.
	Roughen Brush tool - Distort the edge of an object by dragging along its outline.
	Free Transform tool - Rotate, skew, mirror, and scale objects.
	Smear tool - Change the edge of an object by dragging along its outline.
	Twirl tool - Add swirl effects by dragging along the outline of an object.
	Attract tool - Reshape objects by attracting nodes to the cursor.
	Repel tool - Reshape objects by pushing nodes away from the cursor.
	Smooth tool - Smooth object by dragging along its outline.
	Crop tool - Remove the areas outside a selection.
	Knife tool - Slice an object to split it into two separate objects.
	Eraser tool (X) - Remove unwanted areas in a drawing.
	Virtual Segment Delete tool - Remove overlapping segments in objects.
	Zoom tool (Z) - Change the magnification level of the document window.
	Pan tool (H) - Drag hidden areas of a drawing into view without changing the zoom level.
	Freehand tool (F5) - Draw curves and straight line segments.
	2-Point Line tool - Draw a straight line by drawing from the starting point to the endpoint.
	Bezier tool - Draw curves one segment at a time.
	Artistic Media tool (I) - Add artistic brush, spray, and calligraphic effects by using freehand strokes.
	Pen tool - Draw curves in segments, and preview each segment as you draw.
	B-Spline tool - Draw curved lines by setting control points that shape the curve without breaking it into segments.
	Polyline tool - Draw connected curves and straight lines in one continuous action.
	3-Point Curve tool - Draw a curve by dragging from the starting point to the endpoint and then positioning the center point.
	Smart Fill tool - Create objects from overlapping areas, and apply a fill to those objects.
	Smart Drawing tool (Shift+S) - Convert freehand strokes to basic shapes or smoothed curves.
	Rectangle tool (F6) - Draw squares and rectangles by dragging in the drawing window.

	3-Point Rectangle tool - Draw rectangles at an angle.
	Ellipse tool (F7) - Draw circles and ellipses by dragging in the drawing window.
	3-Point Ellipse tool - Draws ellipses at an angle.
	Polygon tool (Y) - Draw polygons by draggig in the drawing window.
	Star tool - Draw uniform, outlined stars.
	Complex Star tool - Draw stars that have intersecting sides.
	Graph Paper tool (D) - Draw a grid.
	Spiral tool (A) - Draw symmetrical and logarithmic spirals.
	Basic Shapes tool - Draw triangles, circles, cylinders, hearts and other shapes.
	Arrow Shapes tool - Draw arrows of various shapes and directions.
	Flowchart Shapes tool - Draw flowchart symbols.
	Banner Shapes tool - Draw ribbon objects and explosion shapes.
	Callout Shapes tool - Draw labels and speech bubbles.
	Text tool (F8) - Add and edit paragraph and artistic text.
	Table tool - Draw, select, and edit tables.
	Parallel Dimension tool - Draw slanted dimension lines.
	Horizontal or Vertical Dimension tool - Draw horizontal or vertical dimension lines.
	Angular Dimension tool - Draw angular dimension lines.
	Segment Dimension tool - Display the distance between end nodes on single or multiple segments.
	3-Point Callout tool - Draw a callout with a two-segment leadingline.
	Straight-Line Connector tool - Draw a straight line to connect two objects.
	Right-Angle Connector tool - Draw a right angle to connect two objects.
	Right-Angle Round Connector tool - Draw a right angle with a rounded corner to connect two objects.
	Edit Anchor tool - Modify the connector line anchor points of objects.
	Blend tool - Blend objects by creating a progression of intermediate objects and colors.

	Contour tool - Apply a series of concentric shapes that radiate into or out of an object.
	Distort tool - Transform objects by applying Push and Pull, Zipper, or Twister effects.
	Drop Shadow tool - Apply shadows behind or below objects.
	Envelope tool - Change the shape of an object by applying and dragging the nodes of an envelope.
	Extrude tool - Apply 3D effect to objects to create the illusion of depth.
	Transparency tool - Partially reveal image areas underneath the object.
	Color Eyedropper tool - Sample colors, and apply them to objects.
	Outline Pen (F12) - Set outline properties such as line thickness, corner shape, and arrow type.
	Outline Color (Shift+F12) - Choose the outline color by using color viewers and color palettes.
	Uniform Fill (Shift+F11) - Choose a solid fill color for an object by using color palettes, color viewers, color harmonies, or color blends.
	Fountain Fill (F11) - Fill an object with a gradient of colors or shades.
	Pattern Fill - Apply a preset pattern fill to an object or create a custom pattern fill.
	Texture Fill - Apply preset texture fills to objects to create the illusion of a variety of textures, such as water, clouds and stone.
	PostScript Fill - Apply an intricate PostScript texture fill to an object.
	Interactive Fill tool (G) - Create a fill dynamically by using markers in the drawing window and property bar to change the angle, midpoint, and color.
	Mesh Fill tool (M) - Fill an object by blending multiple colors or shades arranged over a mesh grid.

6.4 Overview of Pick tool:

The Pick tool serves many functions in CorelDRAW; mainly selecting, moving, and transforming objects. In order to make any changes to an object, whether it's something simple like changing fill or outline color, or something more complex like moving or rotating, the object must first be selected.

Click on the **Pick Tool** in the Toolbox. The **Pick Tool** is the main selection tool in Coral Draw.

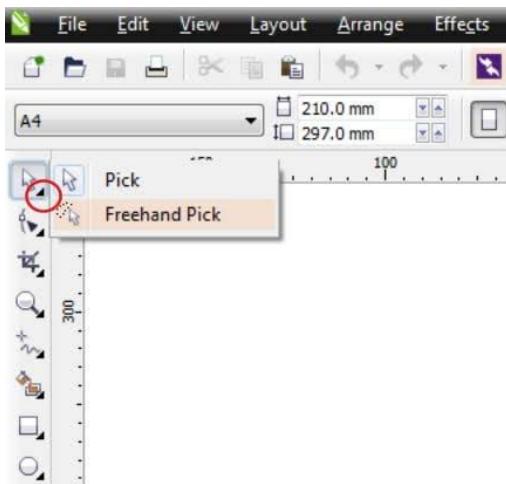


Figure. 6.4 Pick tool

The pick tool is the most important tool in CorelDRAW. Its main function is selecting objects. Subsequently it can be used to manipulate selected objects. The pick tool can

- 6.4.1. Select objects
- 6.4.2. Move objects
- 6.4.3. Transform objects. (Transforming object includes)
 - Resizing
 - scaling,
 - stretching
 - mirroring
 - Rotating
 - skewing

shortcut Key for Pick tool in CorelDRAW is **Cntrl+Spacebar**

Uses of Pick Tool:

Following are some uses of Pick Tool

6.4.1. Selecting Objects with the Pick Tool

To select a single object, activate the Pick tool and click once on the object. The selected object is surrounded by square handles.

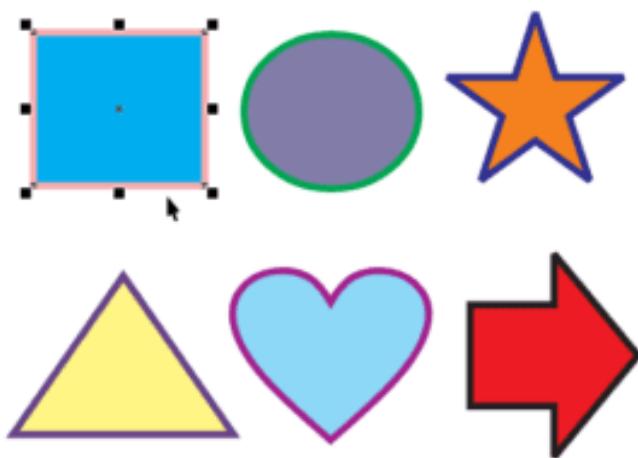


Figure. 6.4.1 selecting object with Pick tool

If you want to deselect an object and/or have nothing selected, simply click in a blank space in the drawing window.

To select multiple objects, hold down the **Shift** key as you click the objects one by one. You can also use the **Pick** tool to drag a rectangular selection marquee around all the objects you want to select.

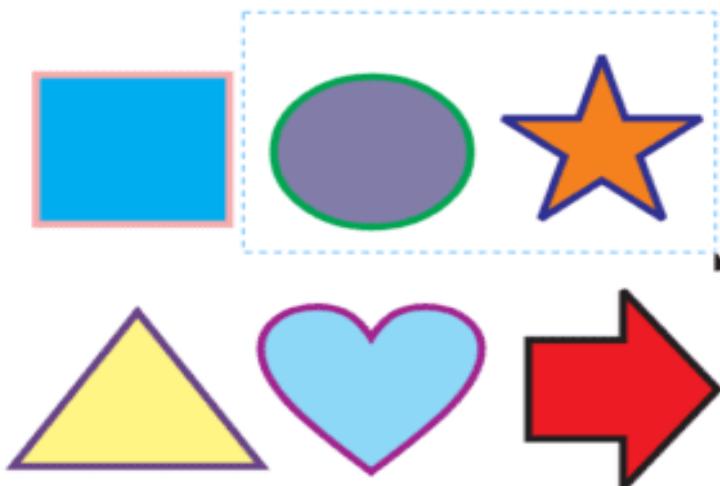


Figure. 6.4.1.1 selecting multiple objects with Pick tool

If you hold the **Alt** key while dragging, all objects within and touching the selection area are selected.

To select all objects in the workspace, you can drag a selection marquee around everything, or double-click the **Pick** tool icon, or press **Ctrl + A**. When multiple objects are selected and you want to deselect one, keep **Shift** pressed and click the object to deselect.

6.4.2. Moving Objects with the Pick

When one or more objects are selected, a bounding box encloses the selection, with an X in the center and 8 black squares all around. These squares are called handles. When the cursor is on an object or on the X, it becomes a 4-way arrow, called the **position cursor**.

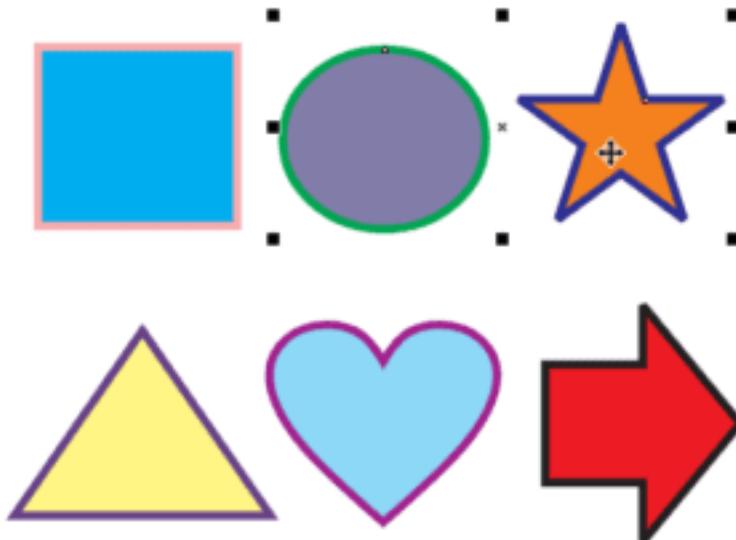


Figure.6.4.2 Moving Objects with the Pick

Clicking and dragging while the position cursor is displayed moves the selected objects. You can also move selected objects by increments with the arrow keys – this is called nudging. Pressing **Shift** with an arrow key moves by greater increments – a super nudge – and with the **Ctrl** key pressed it's a smaller distance – a micro nudge.

TIP #3: For a quick way to make copies of an object, you can select the object and move it around with the **Pick** tool, pressing the **Spacebar** wherever you want to place a copy.

6.4.3. Transforming Objects (Basic Transformations)

The **Pick** tool can also be used for basic object transformations: sizing and scaling, stretching, skewing, rotating, and mirroring. Handles can be used for basic transformations, but for precise transformations, you can also use the **Position** and **Size** fields in the property bar.

Corner handles are used for resizing or scaling.



Figure. 6.4.3 Transforming object (resizing or scaling)

Side handles are for stretching horizontally or vertically.

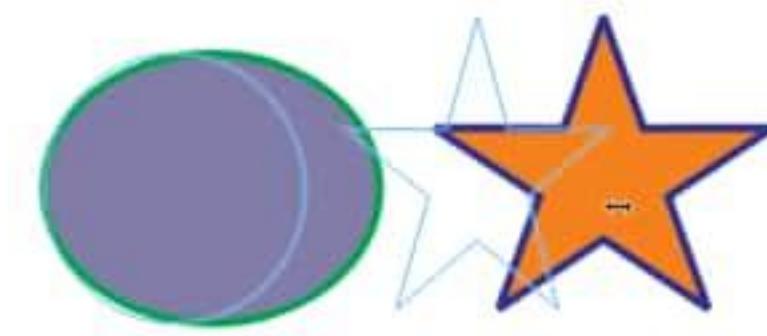


Figure. 6.4.3.1 Transforming object (horizontally or vertically)

To mirror an object, keep the **Ctrl** key pressed while dragging a side handle to the opposite side. This flips an object by its side, whereas the **Mirror** icons in the property bar flip by the object's center.

When the **Pick** tool is active, clicking one or more objects that are already selected displays a new set of handles. Now the corner handles are used for rotating, or you can enter a rotation angle.

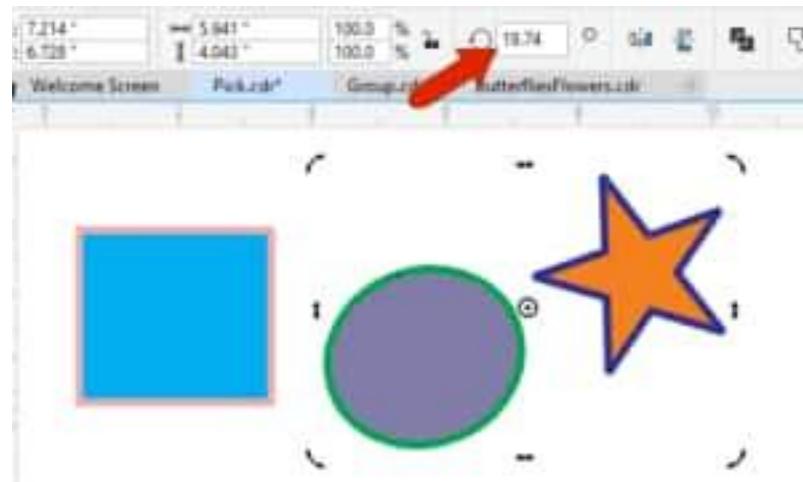


Figure. 6.4.3.2 Transforming object (Rotation)

By default, the rotation is about the center of the objects, but you can drag the center point elsewhere.

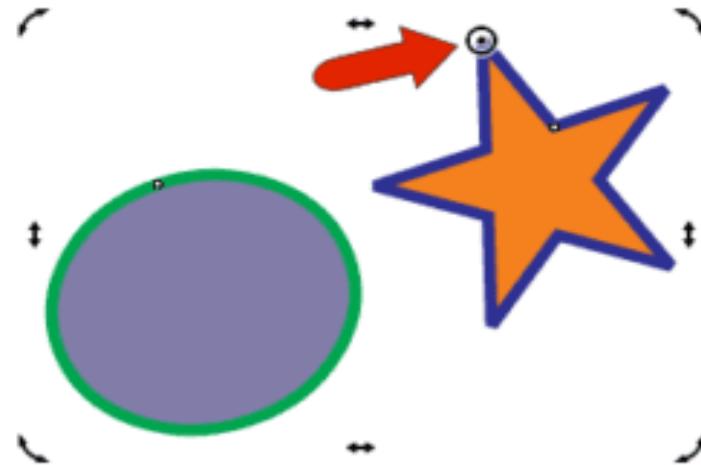


Figure. 6.4.3.3 Transforming object (skewing)

The side handles are used for skewing.

Clicking again brings back the square handles, and if you click again to return to the rotation handles, the center of rotation will return to its default spot.

This works a bit differently when just one object is selected. If you click on a selected object and move the rotation center, then click twice more to toggle handles again, the rotation center remains in place. But you can drag it back to the center of the object. Snap points such as Center, Node, or Edge, appear as long as **Objects** is checked in the **Snap To** menu on the standard toolbar.

6.5. Reshaping objects using Nodes

The **Shape** tool is the standard tool for moving nodes. You can also set an option to use the **Pick** and **Bézier** tools for selecting and moving nodes.

There are 7 tools in the Shape tool group: Shape, Smooth, Smear, Twirl, Attract and Repel, smudge brush, and Roughen brush. These tools can be used to shape different parts of an object or text by manipulating nodes and control handles.

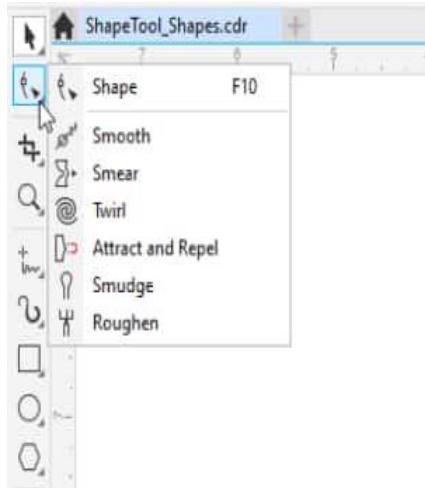


Figure. 6.5. Reshaping objects

6.5.1. What are Nodes?

A node handle is a line with a circle on the end. The location of the nodes and handles determine the shape of the path. A line between two nodes is called a segment. You can change the shape of a segment by dragging it or by adjusting the handles. You can change the location of nodes by dragging them. You can add, delete, move, and perform many other actions on nodes.

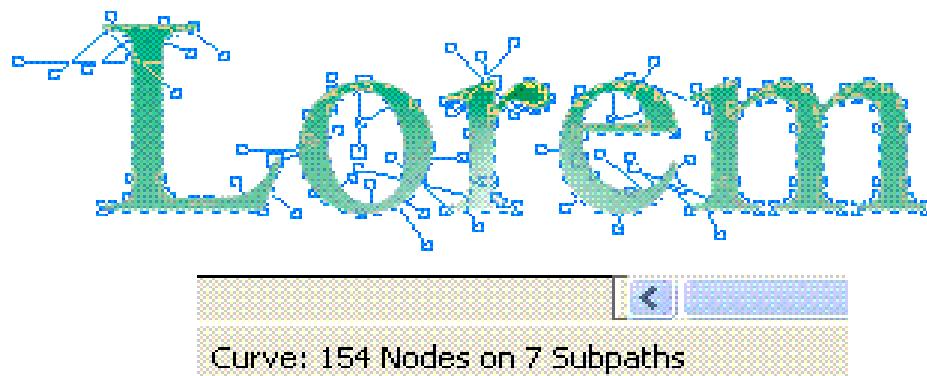


Figure.6.5.1 Nodes

6.5.2 Using the Shape Tool on Standard Shapes

Start with the **Shape** tool, which can also be activated with the **F10** key on the PC.

To start changing the shape of an object, click it with the **Shape** tool to display its nodes and control handles. You can adjust the shape of the object by moving one or more of the nodes.

Each type of object provides a specialized set of shaping methods. For example, when you click on a rectangle with the **Shape** tool, nodes appear at each corner and there are options on the property bar for corner editing.

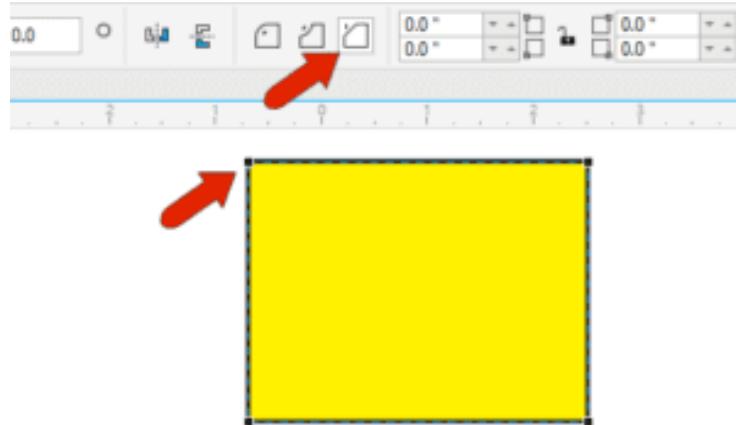


Figure.6.5.2 Nodes options (rectangle)

Dragging any corner node changes all corners, either as rounded, scalloped, or chamfered.

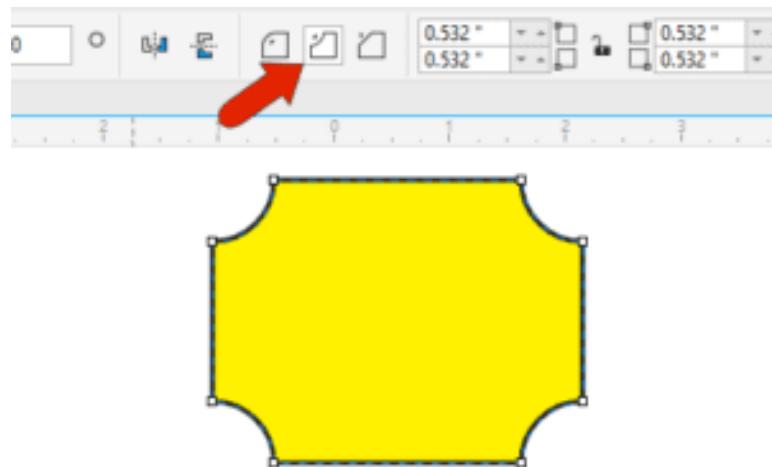


Figure.6.5.2.1 Nodes options

Clicking a corner node before dragging affects just that corner. All corner sizes can be set, whether locked together or unlocked, on the property bar as well.

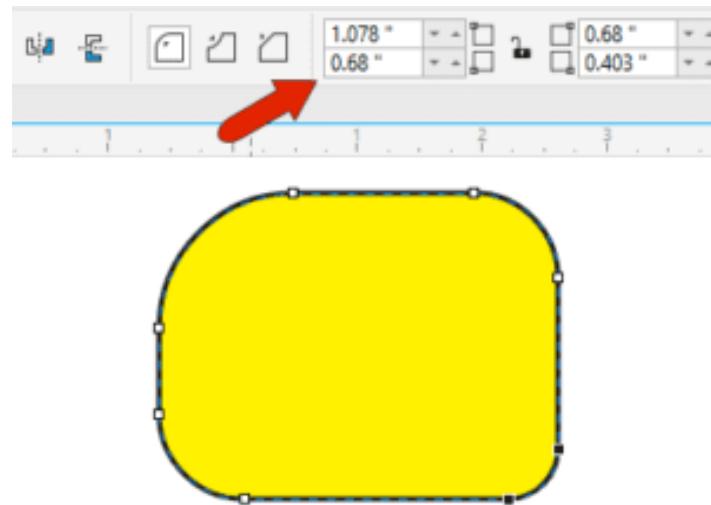


Figure.6.5.2.2 Nodes options (rectangle)

Clicking an ellipse with the **Shape** tool displays just one node. Dragging this node while the cursor is **inside** the shape changes the ellipse to a pie.

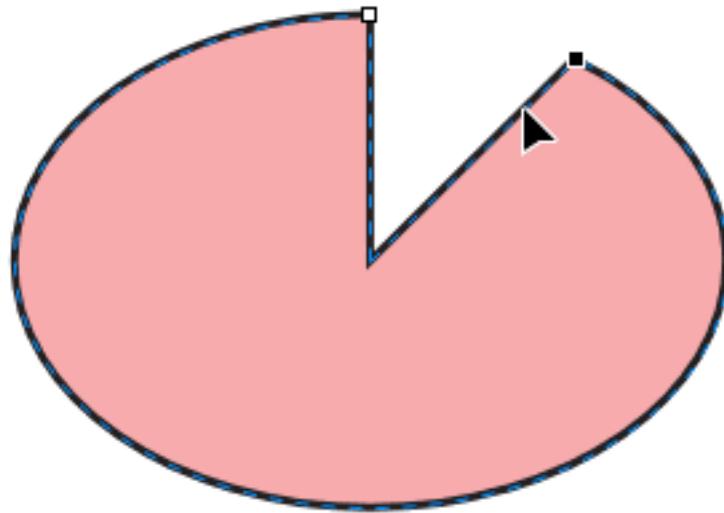


Figure.6.5.2.3 Nodes options (circle)

If the cursor is **outside** the ellipse, an open arc is created when you drag the node with the **Shape** tool. Ellipse type and angles can be set on the property bar.

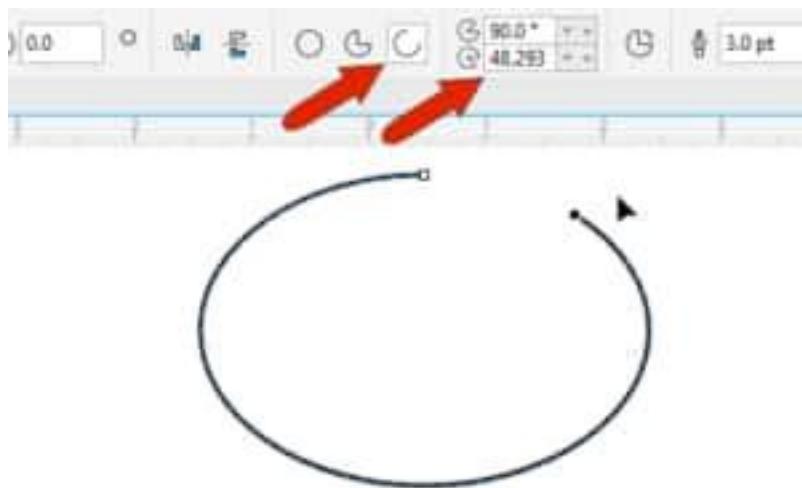


Figure.6.5.2.4 Nodes options (circle)

For a polygon, dragging a node creates the same change at all sides or points. For example, if you drag one of the middle side nodes on a 5-sided polygon inward, you can create a star. Holding the **Ctrl** key while dragging a node keeps all segments even, otherwise the nodes can be dragged anywhere.

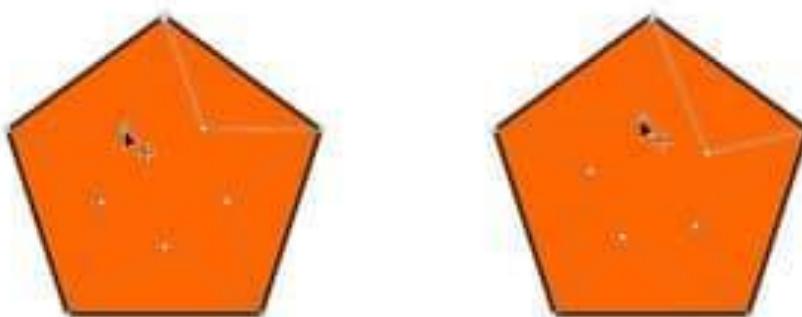


Figure.6.5.2.5 Nodes options (polygon)

6.5.3 Using the Shape Tool on Text

For text objects, the **Shape** tool places nodes on each character, allowing you to edit each character independently. You can use the node to drag a character to a different spot in the document, or click on a color swatch on the **Color** palette to change the fill. You can also use the settings on the property bar to change the font, size and rotation of each character.

If you want to edit 2 or more characters together, first use the **Shape** tool to marquee-select all the nodes you want to edit. Then you can proceed to make any changes.



Figure. 6.5.3 Using the Shape Tool on Text

Dragging the icon at the lower right corner changes character spacing, holding **Shift** while dragging this icon changes word spacing, and dragging the icon at the lower left corner changes line spacing.



6.5.3.1 Using the Shape Tool on Text

6.6. Aligning Objects

CorelDRAW lets you precisely align and distribute objects in a drawing. You can align objects with each other and with parts of the drawing page, such as the center, edges, and grid. When you align objects with objects, you can line them up by their centers or by their edges.

You can align multiple objects horizontally or vertically with the center of the drawing page. Single or multiple objects can also be arranged along the edge of the page and to the nearest point on a grid.

Distributing objects automatically adds spacing between them based on their width, height, and center points. You can distribute objects so that their center points or selected edges (for example, top or right) appear at equal intervals. You can also distribute objects so that there is equal space between them. You can distribute objects over the extent of the bounding box surrounding them or over the entire drawing page.

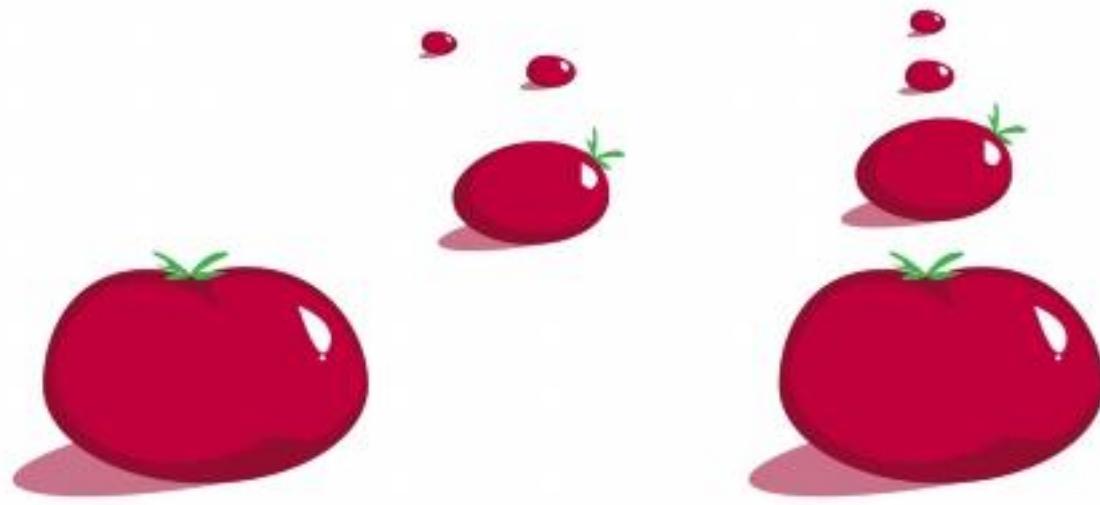


Figure 6.6. Aligning Objects

6.6.1. To align an object with another object

1. Select the objects.

If you select the objects one at a time, the last object selected is the reference point for aligning the other objects. If you marquee select the objects before you align them, the object that is positioned in the upper-left corner of the selection is used as a reference.

2. Click **Arrange ▶ Align and distribute ▶ Align and distribute**.

3. Click the **Align** tab.

4. Specify vertical alignment, horizontal alignment, or both:

- To align objects along the vertical axis, enable the **Left**, **Center**, or **Right** check box.
- To align objects along the horizontal axis, enable the **Top**, **Center**, or **Bottom** check box.

5. From the **Align objects to** list box, choose **Active objects**.

If you are aligning text objects, choose one of the following from the **For text source objects use** list box:

- **First-line baseline** — uses the baseline of the first line of text as a reference point
- **Last-line baseline** — uses the baseline of the last line of text as a reference point

- **Bounding box** — uses the bounding box of a text object as a reference point

You can also align objects with another object quickly, without using the **Align and distribute** dialog box, by clicking **Arrange ▶ Align and distribute** and clicking any of the first six alignment commands. The letter next to a command name indicates the keyboard shortcut that you can use to align objects. For example, the letter **L** next to the **Align left** command shows that you can press **L** to align objects with the leftmost point of the object that is used as a reference point.

You can also open the **Align and distribute** dialog box by selecting the objects and clicking the **Align and distribute** button  on the property bar.

6.6.2. To align an object with the page centre

1. Select an object.

If you want to align multiple objects, marquee select the objects.

2. Click **Arrange ▶ Align and distribute**, and then click one of the following:

- **Center to page** — aligns all objects with the page center, both vertically and horizontally
- **Center to page horizontally** — aligns objects with the page center along a horizontal axis
- **Center to page vertically** — aligns objects with the page center along a vertical axis

You can also align all objects with the page center, vertically and horizontally, by pressing **P**.

6.6.3. To align an object with the page edge

1. Select an object.

If you want to align an object group, select the group.

2. Click **Arrange ▶ Align and distribute ▶ Align and distribute**.

3. Click the **Align** tab.

4. Specify vertical alignment, horizontal alignment, or both:

- To align objects along the vertical axis, enable the **Left**, **Center**, or **Right** check box.
- To align objects along the horizontal axis, enable the **Top**, **Center**, or **Bottom** check box.

5. Choose **Edge of page** from the **Align objects to** list box.

You can also open the **Align and distribute** dialog box by selecting the objects and clicking the **Align and distribute** button on the property bar.

You can align an object with the grid by choosing **Grid** from the **Align objects to** list box.

6.6.4. To align an object with a specified point

1. Select an object.

If you want to align an object group, select the group.

2. Click **Arrange ▶ Align and distribute ▶ Align and distribute**.

3. Click the **Align** tab.

4. Specify vertical alignment, horizontal alignment, or both:

- To align objects along the vertical axis, enable the **Left**, **Center**, or **Right** check box.
- To align objects along the horizontal axis, enable the **Top**, **Center**, or **Bottom** check box.

5. Choose **Specified point** from the **Align objects to** list box.

6. Click **Apply**.

The pointer changes to a crosshair pointer.

7. Click in the drawing window to define the reference point for alignment.

6.6.5. To distribute objects

1. Select the objects.

2. Click **Arrange ▶ Align and distribute ▶ Align and distribute**.

3. Click the **Distribute** tab.

4. To distribute the objects horizontally, enable one of the following options from the top-right row:

- **Left** — evenly spaces the left edges of the objects
- **Center** — evenly spaces the center points of the objects
- **Spacing** — places equal intervals between the selected objects
- **Right** — evenly spaces the right edges of the objects

5. To distribute the objects vertically, enable one of the following options from the column on the left:

- **Top** — evenly spaces the top edges of the objects
- **Center** — evenly spaces the center points of the objects
- **Spacing** — places equal intervals between the selected objects
- **Bottom** — evenly spaces the bottom edges of the objects

6. To indicate the area over which the objects are distributed, enable one of the following options:

- **Extent of selection** — distributes the objects over the area of the bounding box surrounding them
- **Extent of page** — distributes the objects over the drawing page

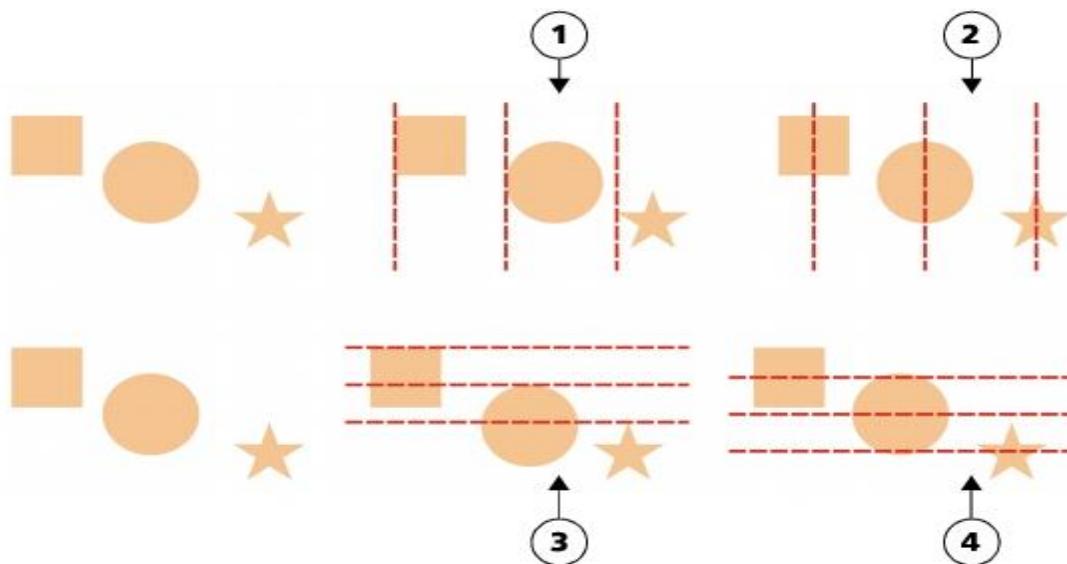


Figure. 6.6.5. To distribute objects

Top row: Options for distributing objects horizontally.

- 1) The **Left** option evenly spaces the left edges.
- 2) The **Center** option evenly spaces the center points. Bottom row: Options for distributing objects vertically.
- 3) The **Top** option evenly spaces the top edges.
- 4) The **Center** option evenly spaces the center points.

6.7. The duplicate command

CorelDRAW provides you with several ways to copy objects. You can cut or copy an object to place it on the Clipboard and paste it into a drawing.

Cutting: Cutting an object place it on the Clipboard and removes it from the drawing.

Copying: Copying an object place it on the Clipboard but keeps the original in the drawing.

Duplicating: Duplicating an object places a copy directly in the drawing window and does not use the Clipboard. Duplicating is faster than copying and pasting. Also, when duplicating an object, you can specify the distance between the duplicate and the original object along the x and y axes. This distance is known as the offset.

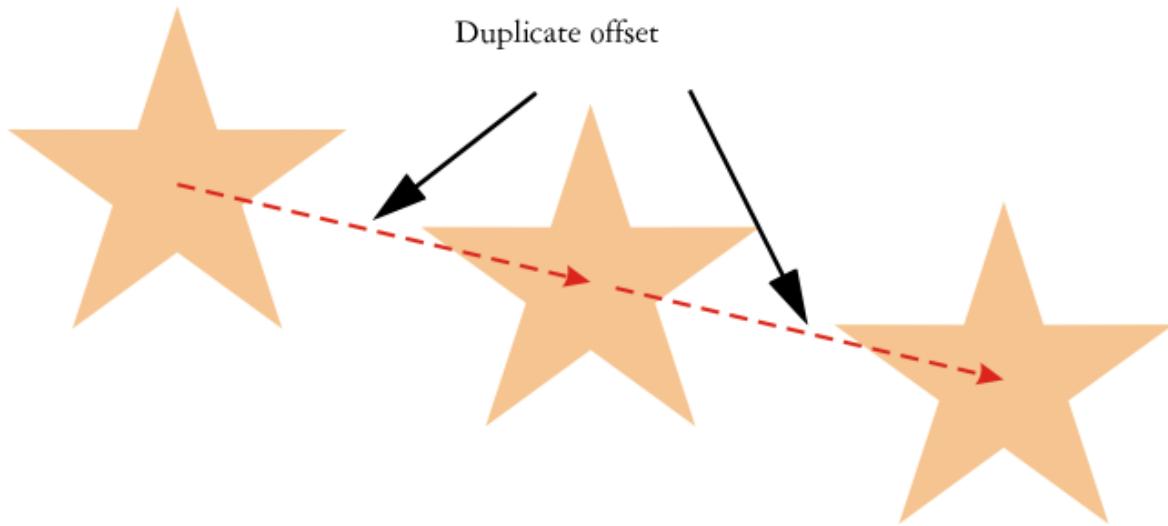


Figure. 6.7. The duplicate command

Note: You can apply a transformation, such as rotating, sizing, or skewing, to the duplicate of an object while keeping the original object intact. If you decide that you want to keep the original object, you can delete the duplicate.

6.7.1 Copying objects at a specified position

You can create multiple copies of objects simultaneously, while specifying their position, without using the Clipboard. For example, you can distribute object copies horizontally, to the left or right of the original object; or you can distribute copies of objects vertically, below or above the original object. You can specify the spacing between copies of objects, or you can specify the offset at which copies of objects are created in relation to each other.

6.7.2 Copying objects quickly

You can use other methods to create copies of objects quickly, without using the Clipboard. You can use the plus sign (+) on the numeric keypad to place a copy of an object on top of the original object, or you can create copies instantly by pressing the Spacebar or right-clicking while dragging an object.

6.7.3 To cut or copy an object

- 1 . Select an object.
- 2 . Click Edit, and click one of the following:
 - Cut

- **Copy**

You can also cut or copy an object by right-clicking the object and clicking Cut or Copy.

6.7.4 To paste an object into a drawing

- **Click Edit > Paste.**

6.7.5 To duplicate an object

- 1 . Select an object.
- 2 . **Click Edit> Duplicate.**

When you duplicate objects for the first time, the Duplicate offset dialog box appears. To specify the distance between the duplicate and the original object along the x and y axes, type values in the Horizontal offset and Vertical offset boxes.

- Offset values of 0 place the duplicate on top of the original.
- Positive offset values place the duplicate up and to the right of the original.
- Negative offset values place the duplicate down and to the left of the original.

You can change the offset at which duplicates are created. **Click Tools > Options** and in the Document list of categories, click General, and type values in the Horizontal and Vertical boxes. You can also duplicate a selected object by pressing **Ctrl + D**.

6.7.6 To create copies of an object at a specified position

- 1 . Select an object.
- 2 . Click Edit > Step and repeat.
- 3 . In the Step and repeat docker, type a value in the Number of copies box, and click Apply.

6.7.7 To Distribute copies of objects horizontally

In the **Vertical** settings area, choose **No offset** from the **Mode** list box. In the **Horizontal** settings area, choose **Spacing between objects** from the Mode list box. To specify the spacing between object copies, type a value in the **Distance** box. To place the object copies to the right or left of the original, choose Right or Left from the **Direction** list box.

6.7.8 To Distribute copies of objects vertically

In the **Horizontal** settings area, choose **No offset** from the **Mode** list box. In the **Vertical** settings area, choose **Spacing between objects** from the **Mode** list box. To specify the spacing between copies of objects, type a value in the **Distance box**. To place the copies above or below the original, choose Up or Down from the **Direction** list box.

Offset all copies of objects by a specified distance

In the **Horizontal** settings and **Vertical** settings areas, choose **Offset** from the Mode list box, and type values in the **Distance** boxes.

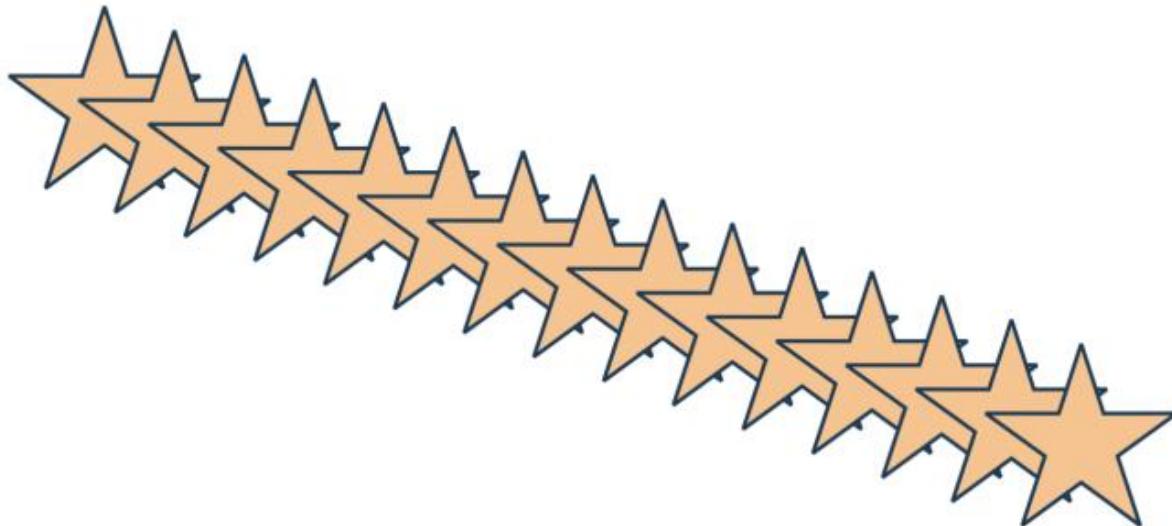


Figure. 6.7.8 Multiple copies of an object are offset by a specified distance

You can access the **Step and repeat** docker by pressing **Ctrl + Shift + D**.

6.7.9 To create copies of objects quickly

- 1 . Select an object by using the Pick tool.
- 2 . Press the Spacebar while moving, rotating, or transforming the object.

You can also

- Place a copy of an object on top of the original then Press the plus sign (+) on the numeric keypad.
- Create a single copy by using a mouse or stylus. While moving, rotating, or transforming the object, right-click and then release both mouse buttons.

6.8. Welding objects, Trimming objects

6.8.1. Welding objects:

Welding objects together in CorelDraw creates one object with a single line. You can create irregular shapes by welding and intersecting objects. You can weld or intersect almost any object, including clones, objects on different layers, and single objects with intersecting lines. However, you cannot weld or intersect paragraph text, dimension lines, or masters of clones.

How to Weld Objects

The weld command works with both overlapping and adjacent (non-overlapping) objects:

1. Select the **Pick tool** and select the first object.

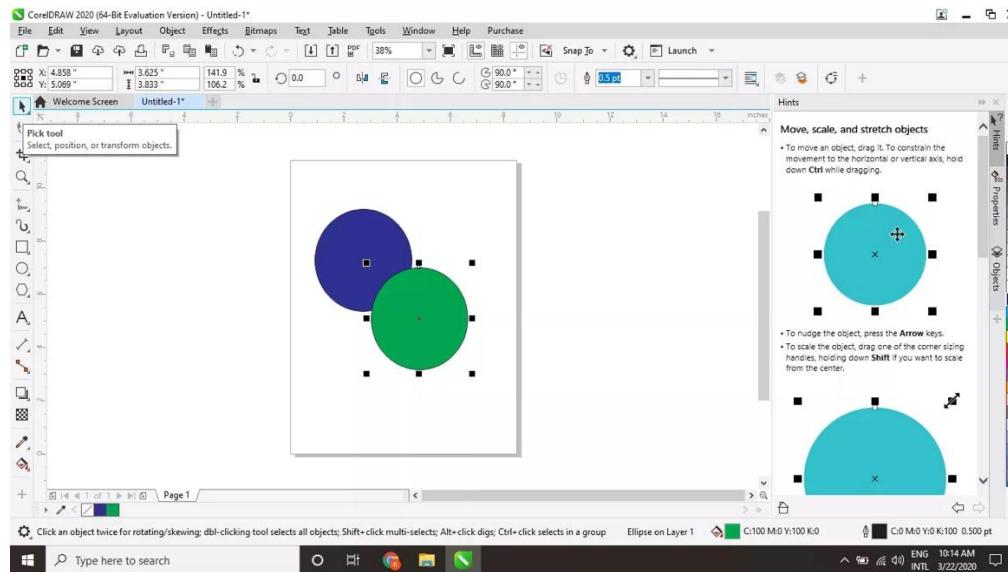


Figure. 1. selecting first object

2. Hold down the **Shift** key and select the second object.

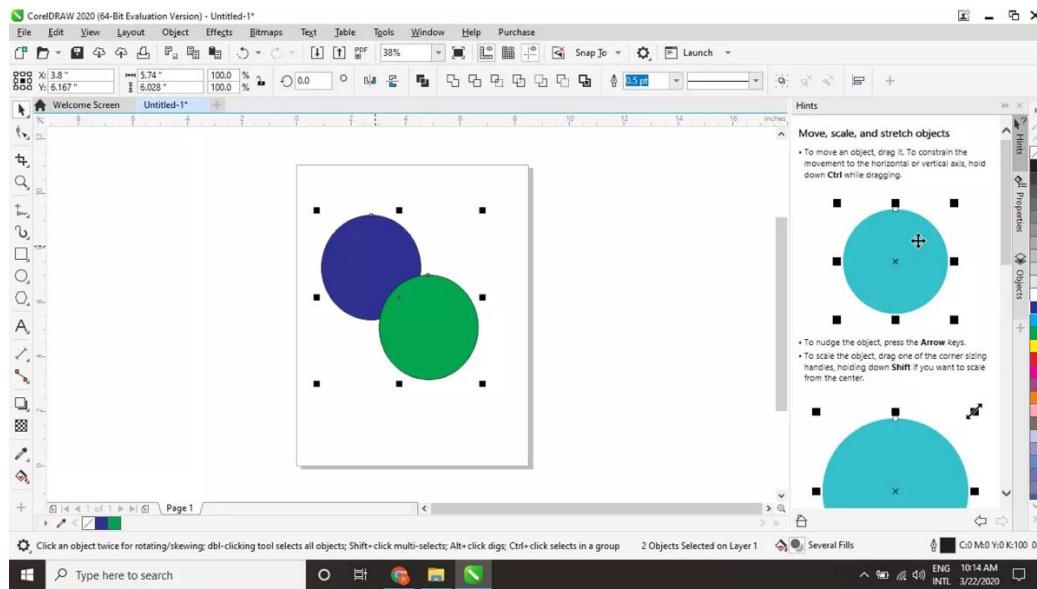


Figure.2. selecting second object

3. Select **Object > Shaping > Weld** in the top taskbar.

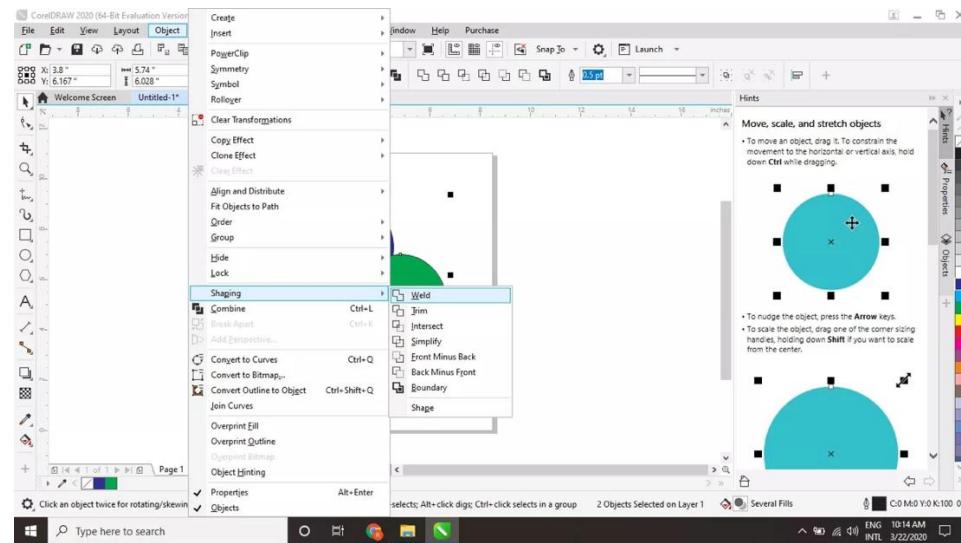


Figure.3 select weld

When you weld objects of different colors, they take on the color of the last object you selected. For example, if you have overlapping green and blue circles, selecting the green one and then the blue one will result in the whole object turning blue. If you wanted the new object to be green, you would select the blue circle first and then the green one.

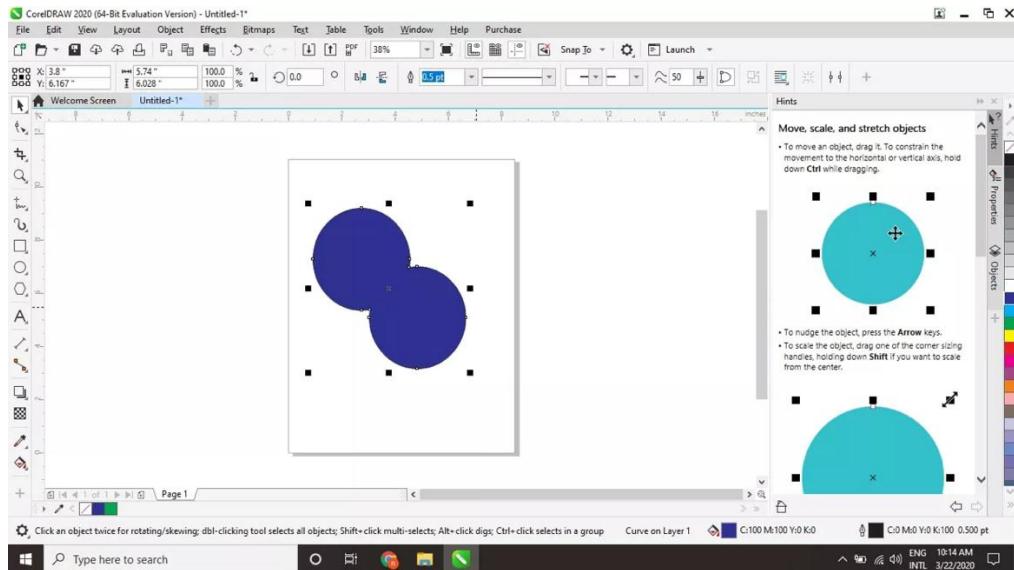


Figure.4 welding objects

6.8.2. Trimming objects:

Trimming creates irregularly shaped objects by removing object areas that overlap. You can trim almost any object, including clones, objects on different layers, and single objects with intersecting lines. However, you cannot trim paragraph text, dimension lines, or masters of clones.

Before you trim objects, you must decide which object you want to trim (the target object) and which object you want to use to perform the trimming (the source object). For example, if you want to create a star-shaped cut out of a square object, the star is the source object because you are using it to trim the square. The square is the target object because it's the object you want to trim. The source object trims the part of the target object it overlaps.

The target object retains its fill and outline attributes. For example, if you trim a rectangle that is overlapped by a circle, the area of the rectangle that was covered by the circle is removed, creating an irregular shape.

How to Use the Trim Tool

The key to using the **Trim** tool is to decide which object needs trimmed, and which object you are going to use to trim it. In this example, we are going to create a simple crescent moon from two circles, using the pink circle to trim the grey circle:

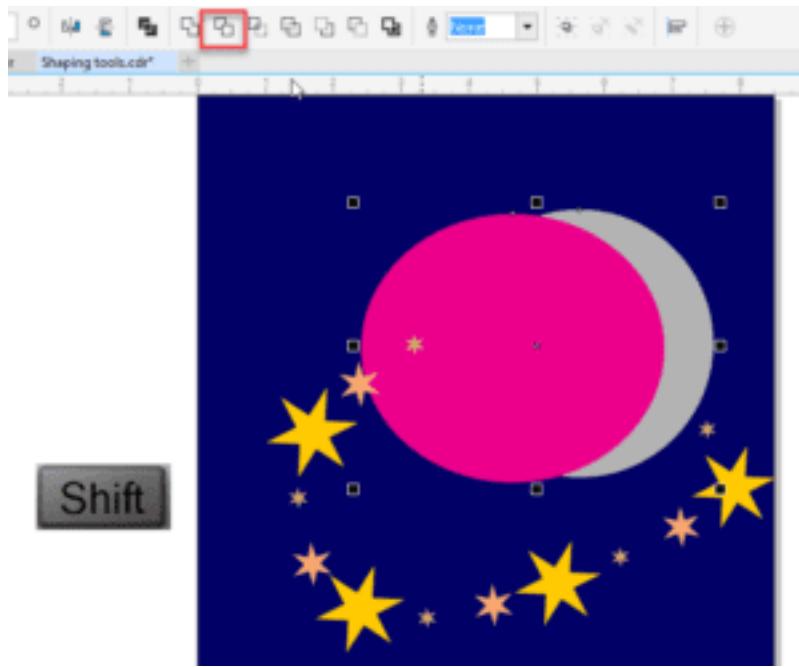


Figure. 6.8.2. Trimming objects

- Select the pink circle with the **Pick** tool
- Hold down the **Shift** key

- Select the grey circle
- Click **Trim** in the interactive toolbar
- Pull the pink shape away to reveal the grey crescent moon

6.9. Intersecting objects

We can create irregular shapes by intersecting **objects**. Intersecting creates an object from the area where two or more objects overlap. The shape of this new object can be simple or complex, depending on the shapes you intersect. The new object's fill and outline attributes depend on the object you define as the target object.

To intersect objects

1. Select the source **object**.
2. Hold down **Shift**, and select the target object.
3. Click **Arrange ▶ Shaping ▶ Intersect**.

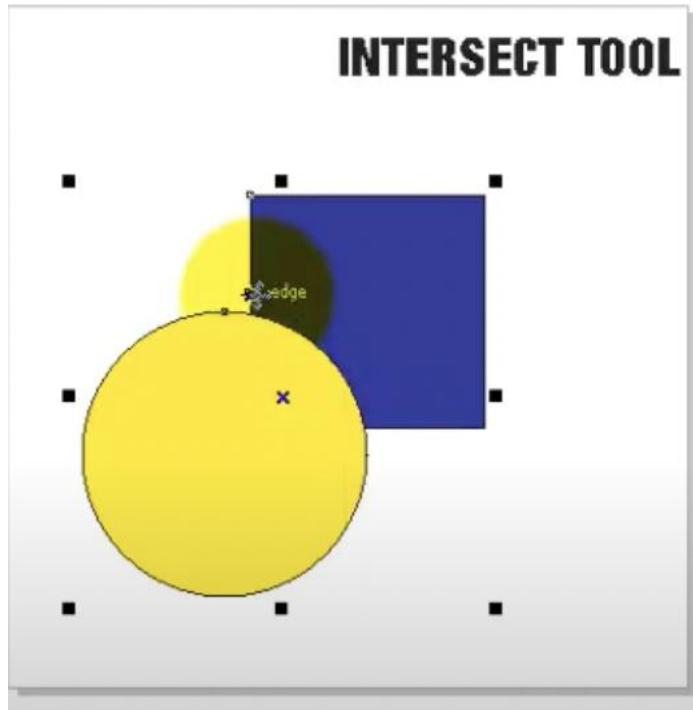


Figure. 6.9 Before intersecting objects

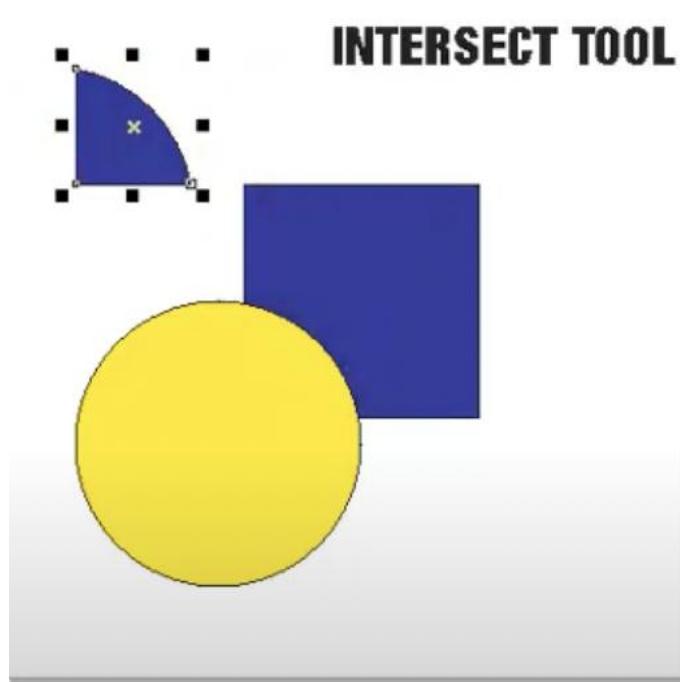


Figure. 6.1. After intersecting object

- The new object, which is created from the overlapping parts of the source and target object, has the fill and outline properties of the target object.
- You can also intersect objects by selecting the source and target objects and clicking the **Intersect** button  on the property bar.

To intersect multiple objects

1. Marquee select the source **object** or objects.
2. Hold down **Shift**, and click each target object.
3. Click **Arrange ▶ Shaping ▶ Intersect**.

6.10. Simplify and Back Minus Front — Front Minus Back

6.10.1. Simplify Tool:

The **Simplify** tool trims overlapping areas among objects, no matter the order in which the objects are selected. At first, it looks like nothing has happened, but if you pull the objects away from one another, you will see each layer beneath is trimmed by the objects above or below it, like a cookie cutter.

In this example, we are going to remove the red rectangle from a design for a more uniform, simplified result:

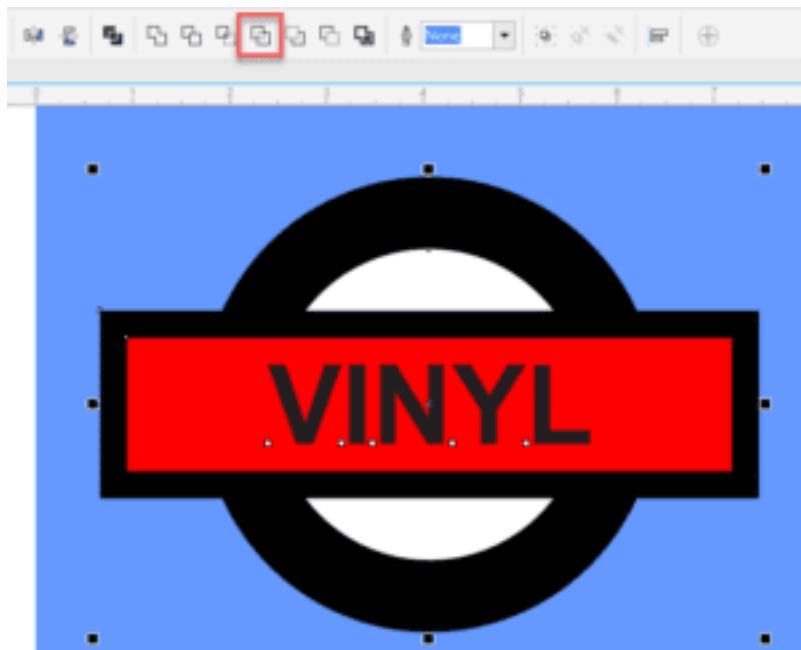


Figure.1 Example

- select all the objects on top of the blue background
- Click the **Simplify** button in the interactive toolbar



Figure.2 Simplify

- Delete the red rectangle to see the blue background



Figure.3 Wireframe view

- Go to **View > Wireframe** to see the bare bone results
- Go to **View > Enhanced** to return to your normal view

6.10.2. Front Minus Back Tool:

The **Front minus back** tool erases shapes that are in the back of a design and leaves those are at the front. With this tool, it's not critical which shape is selected first.

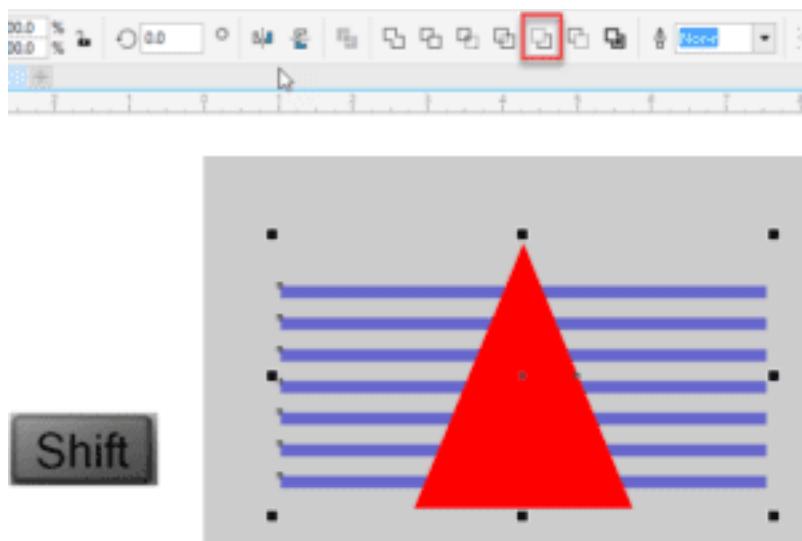


Figure. 6.10.2 Example Front Minus Back

In this example, we're going to remove the blue rectangles, while leaving the red triangle intact:

- Select the triangle
- Hold down the **Shift** key
- Select the blue rectangles
- Click the **Front minus back** button in the interactive toolbar

6.10.3. Back Minus Front Tool:

The **Back minus front** tool works in the opposite fashion, by subtracting the back shape from the front shape in designs, creating a different result.

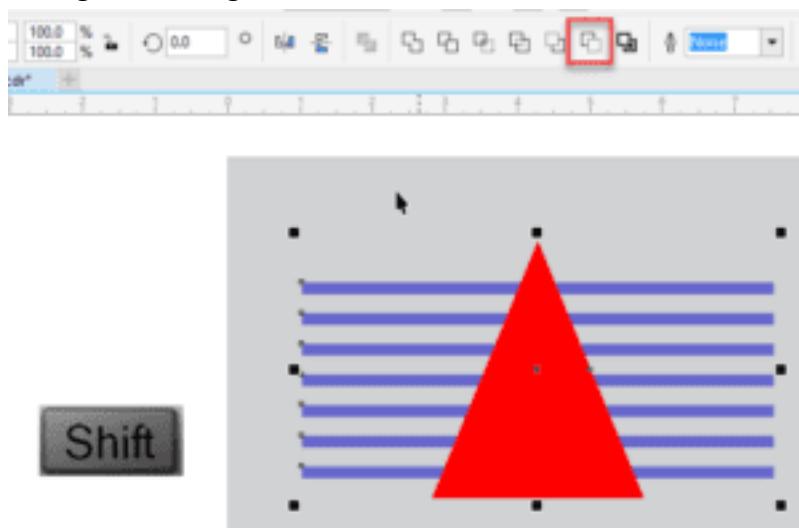


Figure. 6.10.3. Back Minus Front

In this example, we're going to make a quick logo using this tool:

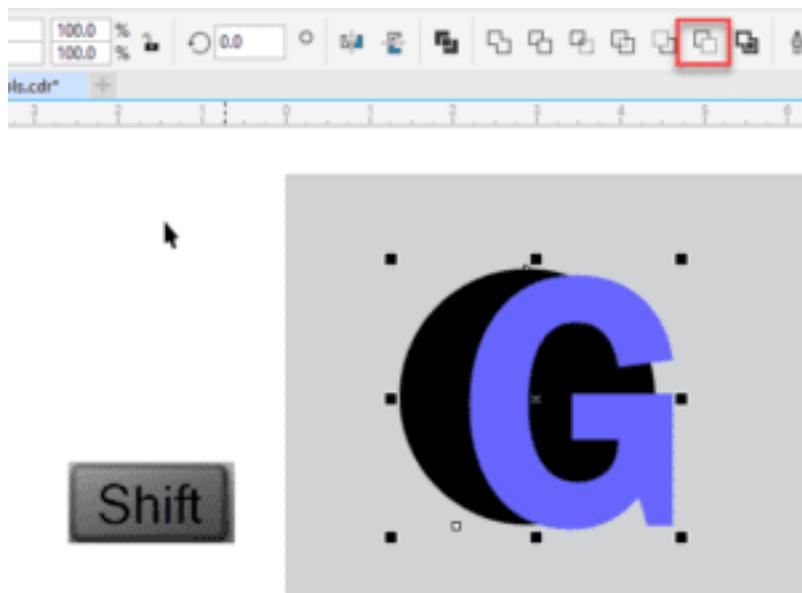


Figure.

- Select the G
- Hold down the **Shift** key
- Select the black circle
- Click the **Back minus front** button in the interactive toolbar

6.11. Smudge Brush

Smudging objects:

Smudging and smearing let you shape an object by pulling extensions or making indentations along its outline. With smudging, the extensions and indentations resemble streaks that vary little in width as you drag with the Smudge brush tool.

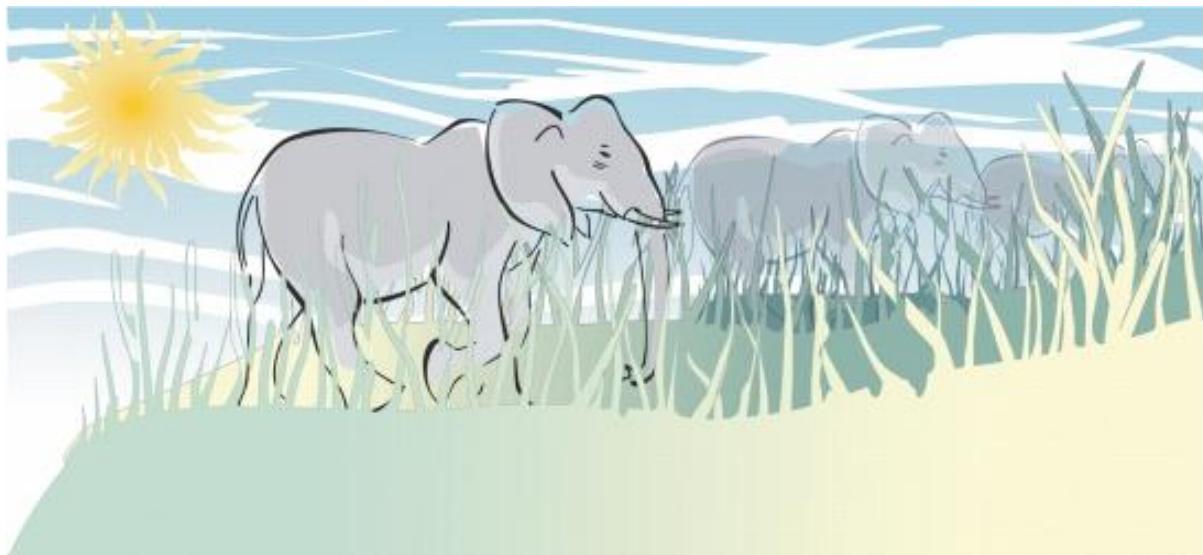


Figure.6.11 Example outline object

The sun's rays and blades of grass have been created by dragging outwards with the Smudge brush tool and the clouds by dragging inwards.

To smudge an object

1. Select an object using the **Pick** tool .
2. In the toolbox, click the **Smudge brush** tool .
3. Do one of the following:
 - To smudge the inside of an object, click outside an object, and drag inwards.
 - To smudge the outside of an object, click inside an object, and drag outwards.

Note: You cannot apply smudging to Internet or embedded objects, linked images, grids, masks, mesh-filled objects, or objects with blend and contour effects.

6.12. Roughen Brush

Roughening objects

The roughening effect lets you apply a jagged or spiked edge to objects, including lines, curves, and text. You can control the size, angle, direction, and number of the indentations apply settings to a mouse.

The roughening effect is determined by fixed settings, or by automatically applying perpendicular spikes to the line.

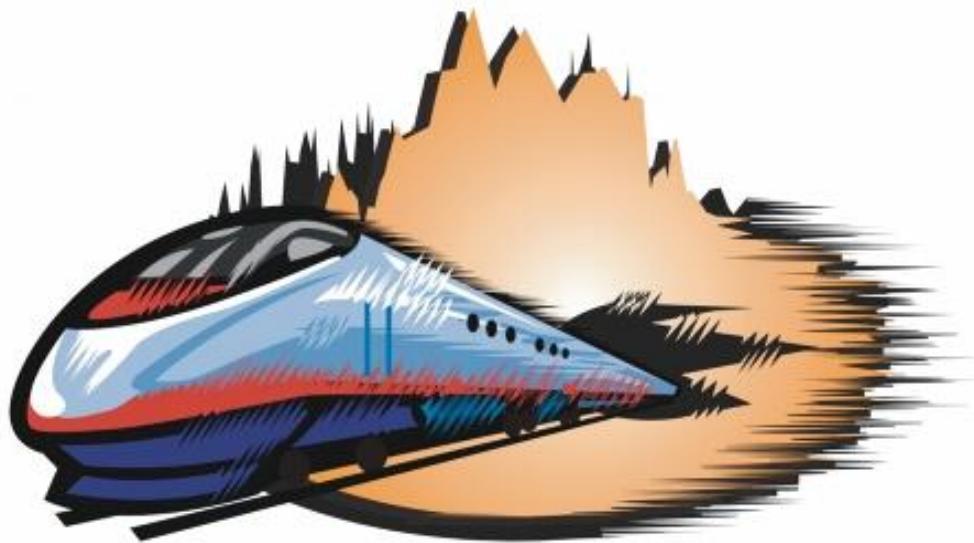


Figure. 6.12 Roughening objects

Roughening allows you to apply jags or spikes to part of an outline or path

To roughen an object

1. Select an object using the **Pick** tool .
2. In the toolbox, click the **Roughen brush** tool .
3. Point to the area on the outline you want to roughen, and drag the outline to distort it

Note: Objects with distortions, envelopes, and perspective applied to them are converted to curve objects before the roughening effect is applied

6.13. Crop Tool

The **Crop** tool can be found in the tool group that is located, by default, in the third icon from the top of the **Toolbox**.



Figure.6.13 crop tool

The simplest use for the **Crop** tool is for trimming images. To do this, activate the **Crop** tool and drag the cursor to define the area to keep – this is called the cropping area.



Figure. 6.13.1 cropping area

The position and size of the cropping area are listed on the property bar, and you can drag in the workspace to move the cropping area, or drag side or corner nodes to resize the cropping area.

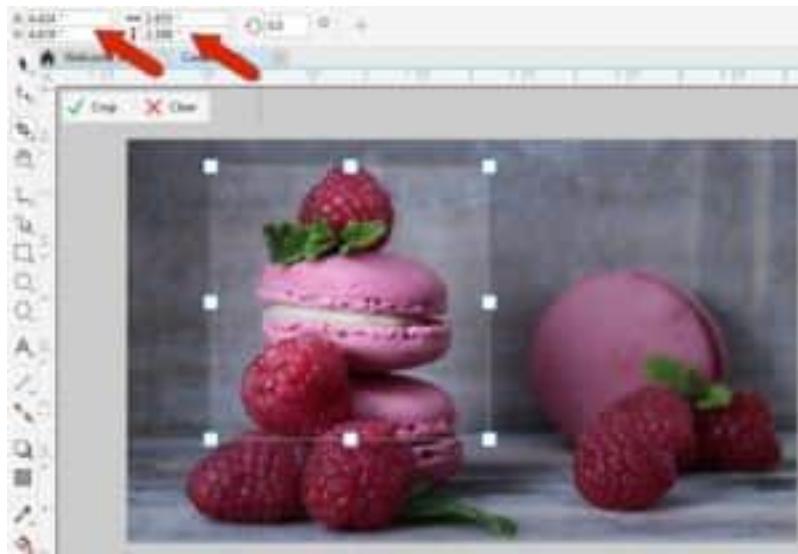


Figure. 6.13.2 to resize cropping area

To complete the crop, click the **Crop** button with the green checkmark, or double-click inside the cropping area. Anything outside this area will be removed.

Or to start over or cancel, click the **Clear** button with the red X, or press the **Esc** key.

If you need a specific cropping area size, first define an cropping area of any size, then specify the crop dimensions on the property bar. Drag the cropping area to the part you want to keep and click the **Crop** checkmark to apply.

6.14. Knife and Erase

6.14.1. Knife tool:

With Knife tool in CorelDRAW®, we can cut and split vector objects, text, and bitmaps along straight, freehand, or Bézier lines.

For example, this heart consists of two curves: the red heart-shaped curve, and a pink curve for the highlight effect.

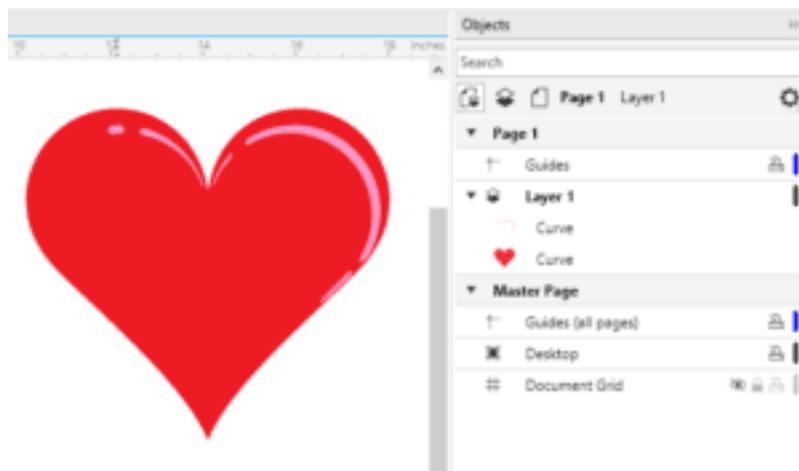


Figure.1 example

When you activate the **Knife** tool, by default it will be set to **2-Point Line** mode, which will slice the object along a straight line.

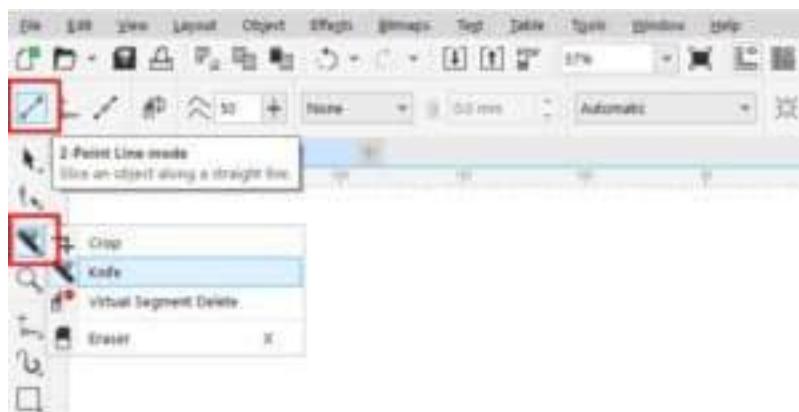


Figure.2 Knife tool

You can start the cut on a point along the curve, or you can start in blank space on the document. If you drag out the cut line so that it only passes through the red fill, a faint cut line can be seen and the **Objects** docker shows that the heart is now split into two curves. Both curves are selected.

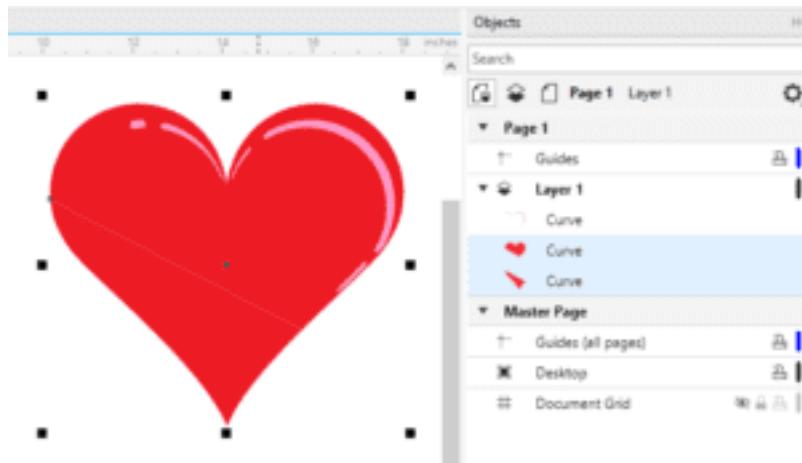


Figure.3 knife tool

With the **Pick** tool, click on a blank area of the document to first deselect everything, then select just the lower portion and move it. To move the top part, you need to select both the pink curve, which wasn't cut, and the red part of the heart.

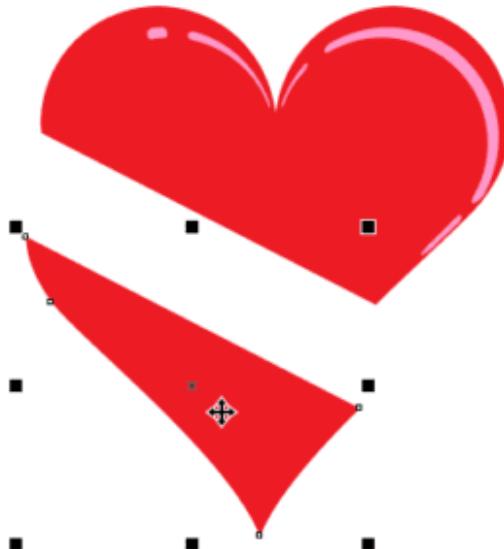


Figure.4 sliced object (heart)

6.14.2. Erase tool:

The main reason to use the **Eraser** tool instead of the **Crop** tool is when you want to remove an area that doesn't have a rectangular shape.

The **Eraser** tool can be found in the **Crop** tool group flyout, and has the **X** shortcut.



Figure. 6.14.2. Erase tool

This tool works just like a pencil eraser, with either a round or square nib. You can change the nib size by entering a new diameter on the property bar, or by holding the **Shift** key while dragging the cursor up or down.

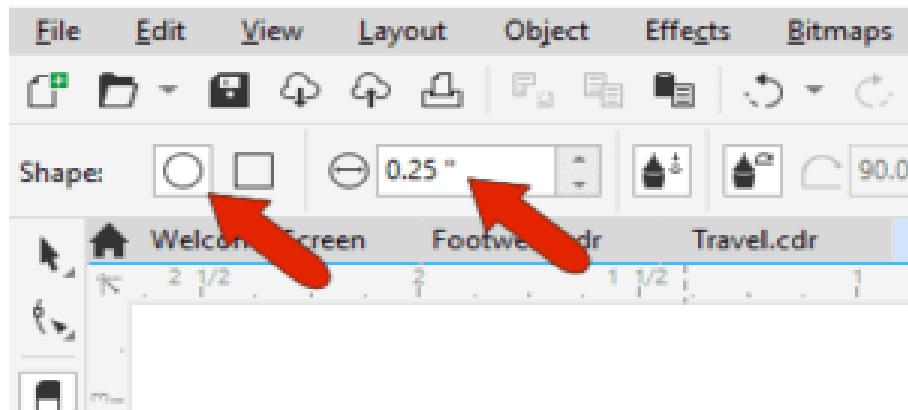


Figure. 6.14.3. change nib size

When you drag the cursor around the image, everything in the cursor's path is erased.



Figure.6.14.4 erasing image

6.15. Virtual segment Delete

With the **Virtual Segment Delete** tool you can delete virtual line segments, which are portions of objects that overlap each other. For example, you can delete a loop in a line that crosses over itself, or loops in line segments in which two or more objects overlap.

The **Virtual Segment Delete** tool is part of the **Crop** tool group – by default, the third set of icons in the **Toolbox**.

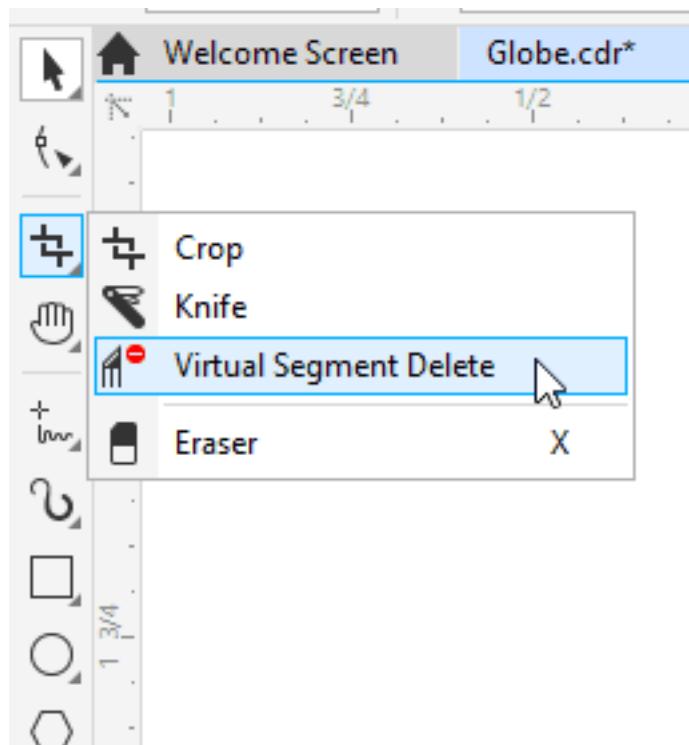


Figure. 6.15. Virtual segment Delete

The tool cursor looks like a knife with a horizontal cutting edge, which switches to vertical when the tool is over something it can cut.

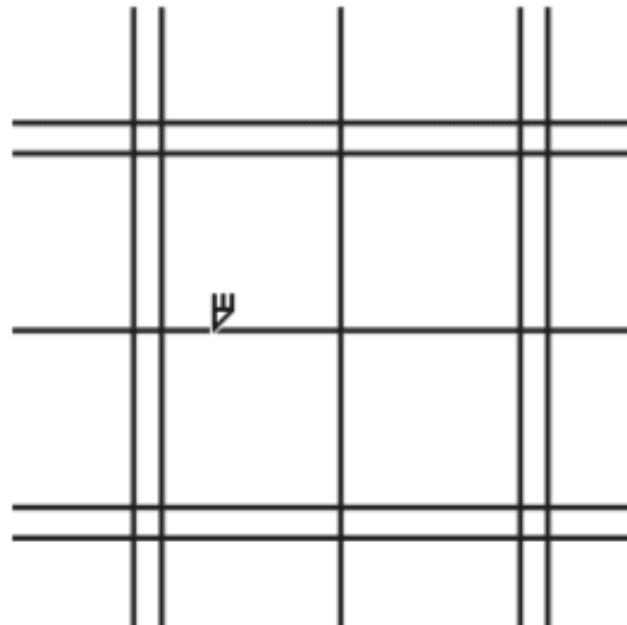


Figure.1 example Virtual segment Delete

When you click on a segment, the segment is deleted.

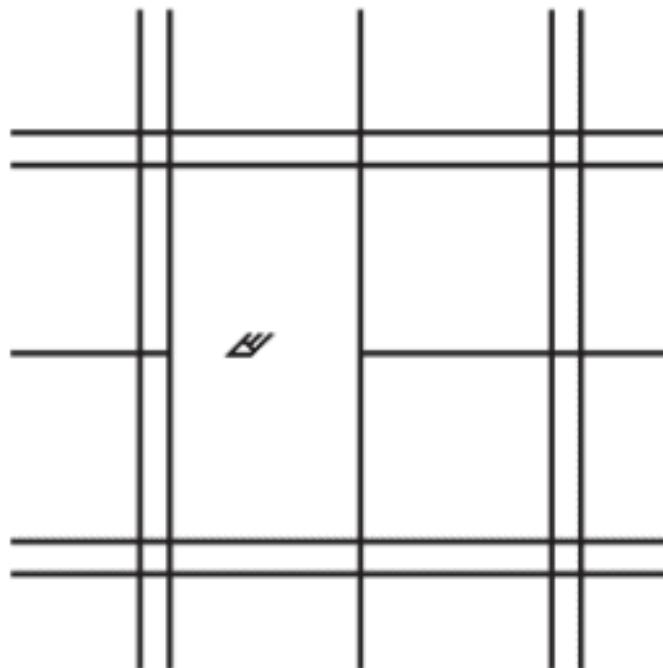


Figure.2. segment Deleted

This tool also works by dragging a selection marquee to include part of each segment you want to cut.

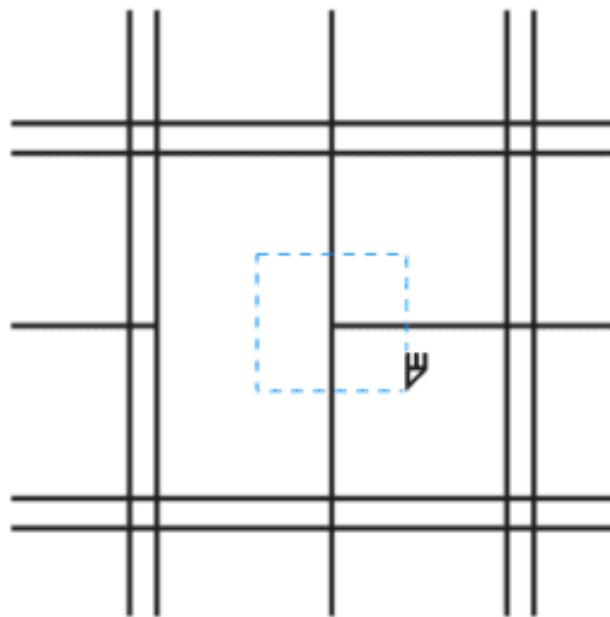


Figure.3. selection marquee

The trimming is done when you release the mouse button.

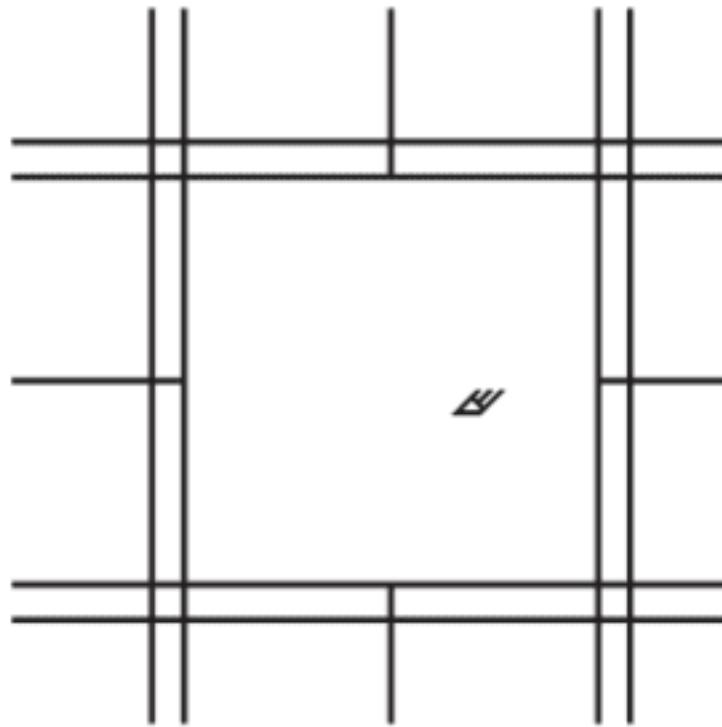


Figure. 5 trimming is done

The **Virtual Segment Delete** tool makes it easy to create complex objects based on simple shapes. This example consists of an ellipse, and a line created with the **2-point Line** tool.

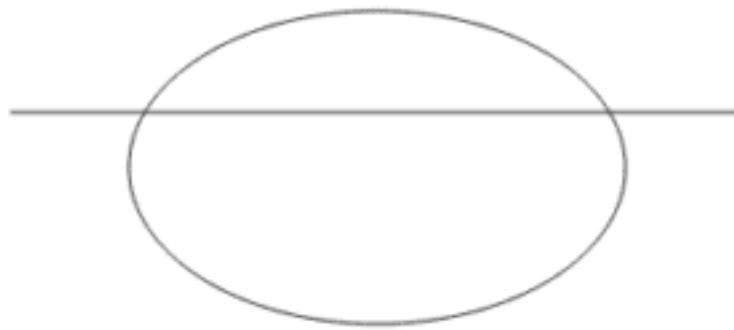


Figure.6 complex objects

Use the **Virtual Segment Delete** tool to trim the bottom of the ellipse, as well as all three segments of the line. Only the top of the ellipse should remain.



Figure.7 trim the bottom of ellips

Press the **Spacebar** to temporarily switch to the **Pick** tool and select the curve, then press **Ctrl +D** (**Cmd + D** for Mac users) to make a copy. With this copy selected, click the **Mirror Vertically** icon on the property bar.

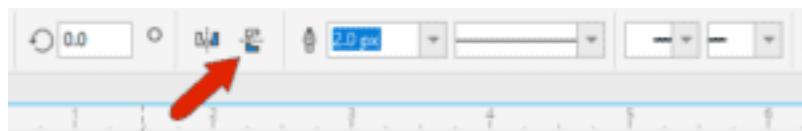


Figure. 8 make a copy

Drag the copied curve by an end node to complete the symmetric shape. (If you don't see snap points for nodes, open your **Snap To** menu on the **Standard** toolbar, and check **Objects**.)
The two curves are separate objects, but you can combine them into a single curve by holding

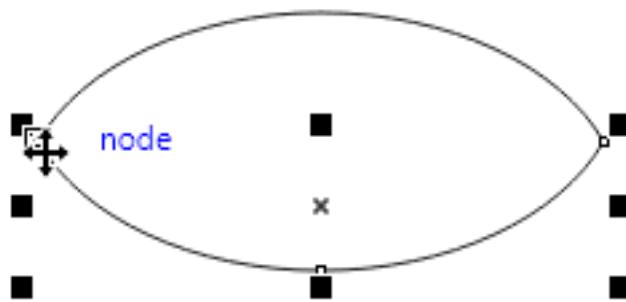


Figure.9 convert to single curve

down the Shift key and selecting them both, then clicking the **Weld** icon on the property bar.

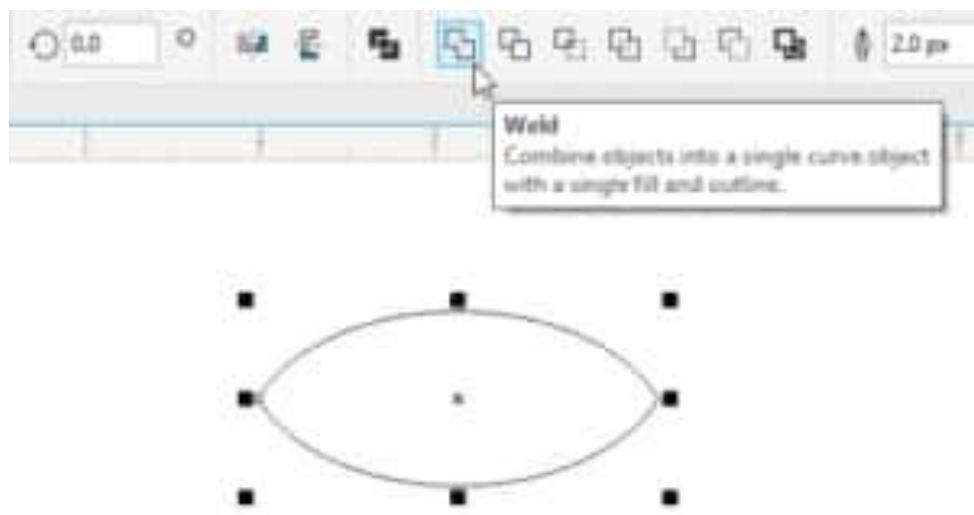


Figure.10 weld object

6.16. Convert outline object

Converting an outline to an object creates an unfilled closed object with the outline's shape. You can apply fills and special effects to the new object.

To convert an outline to an object

1. Select an object
2. Click **Object ▶ Convert outline to object.**

The outline becomes an unfilled closed object independent of the original object's fill. If you want to apply a fill to the new object, the fill is applied to the area, which was the original object's outline.

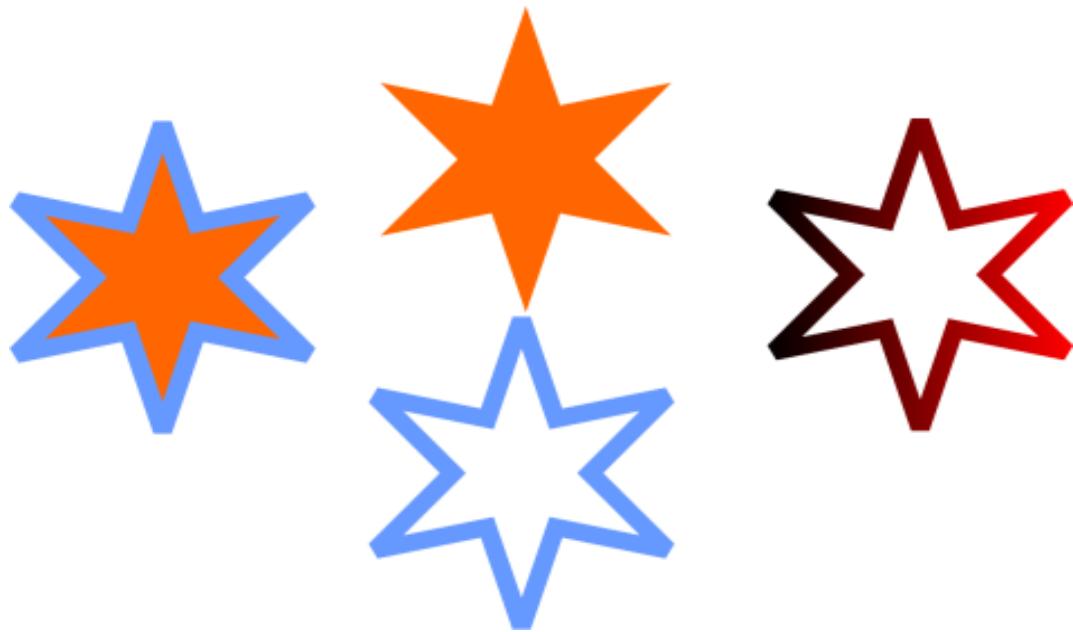


Figure. 6.16. Convert outline object

A star with an outline applied (left); the outline has been converted to an object independent of the original fill (center); a fountain fill was applied to the new closed object.

You can also convert an outline to an object by pressing **Ctrl + Shift + Q**.

To Remove the Outline of an Object

1 . Select an object.

On the property bar, choose **None** from the **Outline width** list box.

2

MULTIPLE CHOICE QUESTIONS. (M.C.Qs)

1. What is CorelDraw?

- a) A photo editing software b) A video editing software
c) A vector graphics editor software d) A 3D modeling software

2. Which company developed and markets CorelDraw?

- a) Adobe b) Microsoft c) Corel Corporation d) IBM

3. Which type of graphics does CorelDraw primarily work with?

- a) Bitmap b) Vector c) 3D d) Pixel

4. Which of the following is NOT a type of designing that can be done with CorelDraw?

- a) Illustration b) Logo Design c) Web Design d) Video Editing

5. Which tool in CorelDraw is used for creating text?

- a) Pen Tool b) Shape Tool c) Text Tool d) Bezier Tool

6. Which file format is commonly used for saving images in CorelDraw?

- a).jpg b) .gif c) .cdr d) .docx

7. Which of the following is NOT a type of media commonly used in CorelDraw?

- a) Images b) Audio c) vectors d) Fonts

8. What is the Pick Tool used for in CorelDraw?

- a) Drawing shapes b) Selecting and moving objects
c) Adding text to a document d) Applying effects to objects

9. What is the shortcut key to switch to the Pick Tool in CorelDraw?

- a) P b) S c) M d) T

10. Which of the following can be done using the Pick Tool in CorelDraw?

- a) Change the size of an object b) Rotate an object
c) Move an object d) All of the above

11. What happens when you click and drag on an object with the Pick Tool in CorelDraw?

- a) The object is duplicated b) The object is moved
c) The object is resized d) The object is rotated

12. What does the Duplicate command do in CorelDraw?

- a) It creates a copy of the selected object b) It moves the selected object to a different location
c) It changes the color of the selected object d) It deletes the selected object

13. How can you access the Duplicate command in CorelDraw?

- a) Right-clicks on the selected object and choose "Duplicate"
- b) Press the "Ctrl" and "D" keys on your keyboard
- c) Use the "Edit" menu and select "Duplicate" d) All of the above

14. What is the shortcut key for the Duplicate command in CorelDraw?

- a) Ctrl+D
- b) Ctrl+C
- c) Ctrl+V
- d) Ctrl+X

15. Can you duplicate multiple objects at once in CorelDraw?

- a) Yes, by selecting multiple objects before using the Duplicate command
- b) No, you can only duplicate one object at a time
- c) It depends on the version of CorelDraw you are using
- d) None of the above

16. What is the difference between the Copy and Duplicate commands in CorelDraw?

- a) There is no difference, they both create a copy of the selected object
- b) Copy places the selected object in the clipboard, while duplicate creates a copy in the same location as the original object
- c) Duplicate places the selected object in the clipboard, while Copy creates a copy in the same location as the original object
- d) None of the above

17. What does the Weld command do in CorelDraw?

- a) It merges two or more objects into a single object
- b) It removes part of an object that overlaps with another object
- c) It creates a border around an object
- d) It rotates an object around a specific point

18. How can you access the Weld command in CorelDraw?

- a) Right-click on the selected objects and choose "Weld"
- b) Use the "Arrange" menu and select "Weld"
- c) Use the "Effects" menu and select "Weld"
- d) All of the above

19. What does the Trim command do in CorelDraw?

- a) It removes part of an object that overlaps with another object
- b) It merges two or more objects into a single object
- c) It creates a border around an object
- d) It rotates an object around a specific point

20. How can you access the Trim command in CorelDraw?

- a) Right-click on the selected objects and choose "Trim"
- b) Use the "Arrange" menu and select "Trim"
- c) Use the "Effects" menu and select "Trim"
- d) All of the above

21. What does the Intersect command do in CorelDraw?

- a) It merges two or more objects into a single object
- b) It removes part of an object that overlaps with another object

- c) It creates a new object from the intersection of two or more objects
d) It rotates an object around a specific point
22. How can you access the Intersect command in CorelDraw?
- Right-click on the selected objects and choose "Intersect"
 - Use the "Arrange" menu and select "Intersect"
 - Use the "Effects" menu and select "Intersect"
 - All of the above
23. What does the Simplify command do in CorelDraw?
- It removes unnecessary nodes from a selected object to simplify its shape
 - It merges two or more objects into a single object
 - It creates a border around an object
 - It rotates an object around a specific point
24. How can you access the Simplify command in CorelDraw?
- Use the "Arrange" menu and select "Simplify"
 - Use the "Effects" menu and select "Simplify"
 - Right-click on the selected object and choose "Simplify"
 - All of the above
25. What does the Back Minus Front command do in CorelDraw?
- It removes the back object from the front object, leaving only the overlapping area
 - It removes the front object from the back object, leaving only the overlapping area
 - It combines the back and front objects into a single object
 - It creates a border around the back and front objects
26. What does the Front minus Back command do in CorelDraw?
- It removes the back object from the front object, leaving only the overlapping area
 - It removes the front object from the back object, leaving only the overlapping area
 - It combines the back and front objects into a single object
 - It creates a border around the back and front objects
27. How can you access the Back Minus Front and Front Minus Back commands in CorelDraw?
- Use the "Arrange" menu and select "Back Minus Front" or "Front Minus Back"
 - Use the "Effects" menu and select "Back Minus Front" or "Front Minus Back"
 - Right-click on the selected objects and choose "Back Minus Front" or "Front Minus Back"
 - All of the above
28. What is the Smudge Brush tool used for in CorelDraw?
- To create lines or shapes
 - To blend or soften edges of an object
 - To add shading or texture to an object
 - To erase part of an object
29. How can you access the Smudge Brush tool in CorelDraw?
- Use the "Toolbox" and select the Smudge Brush tool
 - Use the "Effects" menu and select "Smudge Brush"
 - Right-click on the selected object and choose "Smudge Brush"
 - All of the above
30. How does the Smudge Brush tool work in CorelDraw?

- a) It adds color to an object
 - b) It moves the existing pixels of an object to create a blurred or smeared effect
 - c) It removes part of an object
 - d) It reshapes an object
31. What are some of the options you can adjust for the Smudge Brush tool in CorelDraw?
- a) Brush size, strength, and shape
 - b) Fill color and outline thickness
 - c) Font type and size
 - d) None of the above
32. Can you use the Smudge Brush tool on text in CorelDraw?
- a) Yes, but it will blur the text and may make it difficult to read
 - b) No, the Smudge Brush tool cannot be used on text
 - c) It depends on the font and size of the text
 - d) None of the above
33. What is the Roughen Brush tool used for in CorelDraw?
- a) To create lines or shapes
 - b) To blend or soften edges of an object
 - c) To add shading or texture to an object
 - d) To add a rough, irregular edge to an object
34. How can you access the Roughen Brush tool in CorelDraw?
- a) Use the "Toolbox" and select the Roughen Brush tool
 - b) Use the "Effects" menu and select "Roughen Brush"
 - c) Right-click on the selected object and choose "Roughen Brush"
 - d) All of the above
35. How does the Roughen Brush tool work in CorelDraw?
- a) It adds color to an object
 - b) It moves the existing pixels of an object to create a blurred or smeared effect
 - c) It removes part of an object
 - d) It adds a random, rough texture to an object
36. What is the Crop Tool used for in CorelDraw?
- a) To cut a selected object into multiple pieces
 - b) To remove unwanted parts of an image or object
 - c) To merge multiple objects into a single object
 - d) To resize an object while maintaining its proportions
37. How can you access the Crop Tool in CorelDraw?
- a) Use the "Toolbox" and select the Crop Tool
 - b) Use the "Effects" menu and select "Crop"
 - c) Right-click on the selected object and choose "Crop"
 - d) All of the above
38. What are the Knife and Erase tools used for in CorelDraw?
- a) To create lines or shapes
 - b) To blend or soften edges of an object
 - c) To add shading or texture to an object

- d) To cut or erase parts of an object
39. How does the Virtual Segment Delete tool work in CorelDraw?
- It removes a segment of a line or shape without affecting the rest of the object
 - It removes an entire object from the document
 - It converts a line or shape into an outline object
 - It converts an outline object into a filled object
40. What does the Convert Outline Object tool do in CorelDraw?
- It converts a filled object into an outline object
 - It converts an outline object into a bitmap image
 - It converts a vector object into a raster image
 - It converts a text object into a graphic object

ANSWERS OF MCQS

Q.NO.	Answers								
1	c	2	c	3	b	4	d	5	c
6	c	7	b	8	b	9	a	10	d
11	b	12	a	13	d	14	a	15	a
16	b	17	a	18	a	19	a	20	a
21	c	22	a	23	a	24	c	25	b
26	a	27	c	28	b	29	a	30	b
31	a	32	a	33	d	34	a	35	d
36	b	37	a	38	d	39	a	40	a

SHORT QUESTIONS

- What is CorelDraw?
- What kind of designing can be done using CorelDraw?
- Is CorelDraw a kind of media?
- What are uses of Pick Tool?

5. What file formats can be imported into CorelDraw?
6. What is the difference between a vector and a raster image?
7. How do you align objects in CorelDraw?
8. How do you duplicate objects in CorelDraw?
9. How do you weld or trim objects in CorelDraw?
10. How can you use nodes to reshape an object?
11. What are nodes in CorelDraw?
12. How do you access the nodes of an object in CorelDraw?
13. How do you add or delete nodes in CorelDraw?
14. How do you move nodes in CorelDraw?
15. What is the Simplify command in CorelDraw?
16. What are Back minus Front and Front minus Back commands in CorelDraw?
17. What is the Smudge Brush tool in CorelDraw?
18. What is the Roughen Brush tool in CorelDraw?
19. What is the Crop Tool in CorelDraw?
20. What are the Knife and Erase tools in CorelDraw?
21. What is the Virtual Segment Delete command in CorelDraw?
22. What is the Convert Outline Object command in CorelDraw?

LONG QUESTIONS

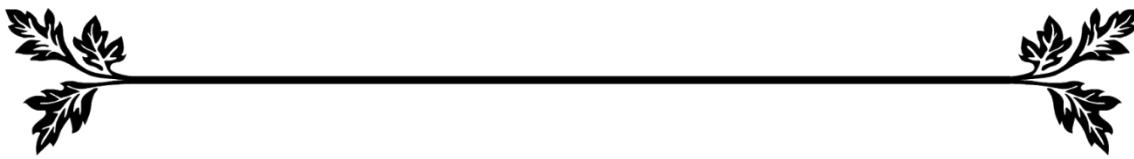
1. What is CorelDraw, and what are its main features and functions?
2. What are the different kinds of designing that can be done with CorelDraw?
3. What kinds of media can be used with CorelDraw, and how can they be incorporated into your designs?
4. What is the Pick Tool in CorelDraw, and how can it be used to select and manipulate objects in your designs?
5. How can you reshape objects using Nodes in CorelDraw, and what are some tips for using this feature effectively?
6. How can you align objects in CorelDraw, and what are some best practices for ensuring that your designs are properly aligned and spaced?
7. What is the Duplicate command in CorelDraw, and how can it be used to create copies of objects in your designs?
8. What are welding and trimming objects in CorelDraw, and how can they be used to combine or remove parts of your designs?
9. How can you intersect objects in CorelDraw, and what are some best practices for using this feature to create more complex shapes and designs?
10. What are the Back Minus Front and Front Minus Back functions in CorelDraw, and how can they be used to subtract one object from another?

11. What is the Smudge Brush in CorelDraw, and how can it be used to create more organic and natural-looking designs?
12. What is the Roughen Brush in CorelDraw, and how can it be used to add texture and depth to your designs?
13. What is the Crop Tool in CorelDraw, and how can it be used to crop and resize images and other media in your designs?
14. What are the Knife and Erase tools in CorelDraw, and how can they be used to cut and remove parts of your designs?
15. What is the Virtual Segment Delete feature in CorelDraw, and how can it be used to remove parts of a path without affecting the rest of the design?
16. How can you convert an outline object in CorelDraw, and what are some tips for using this feature to create more complex shapes and designs?
17. What is difference between Copy, Clone and Duplicate command.

Reference:

1. CorelDRAW X7: The Official Guide, Gary David Bouton
2. <https://whatagraph.com/blog/articles/different-types-of-media/>
3. <https://learn.corel.com/tutorials/coreldraw-shaping-tools>

CHEPTER-7



ADVANCED COREL DRAW

OBJECTIVES

- 7. Advanced Corel draw
- 7.1. Freehand Tool, Bezier Tool, Artistic Media Tool, Pen
- 7.2. Poly Line Tool, 3 Point Curve
- 7.3. Connector and Dimension Tools
- 7.4. Spiral Tool, Polygon Tool
- 7.5. Graph Paper Tool ,Complex Shape tools
- 7.6. Basic Shapes
- 7.7. Symbol Character
- 7.8. Text Tool
- 7.9. Interactive Tools for Fast Changes
- 7.10. Interactive Bend
- 7.11. Interactive Contour
- 7.12. Interactive Distort
- 7.13. Interactive Drop Shadow
- 7.14. Interactive Envelope
- 7.15. Interactive Extrude
- 7.16. Interactive Transparency
- 7.17. Eyedropper Tool Flyout
- 7.18. Outline Tool Flyout
- 7.19. Fill Tool Flyout

7. Advanced Corel draw

Advance CorelDRAW" could refer to advanced techniques or features within the software. Here are some examples of advanced techniques in CorelDRAW:

- ❖ **Working with complex shapes:** Advanced CorelDRAW users know how to create and manipulate complex shapes using tools like the shape tool, node editing tool, and freehand tool.
- ❖ **Advanced typography:** CorelDRAW has advanced typographic features such as OpenType support, advanced text formatting options, and font management tools. Advanced users can utilize these features to create more professional and visually appealing designs.
- ❖ **Color management:** Advanced CorelDRAW users understand how to manage colors within their designs, including using color palettes, color schemes, and color modes like CMYK and RGB.
- ❖ **Printing and output:** Advanced CorelDRAW users know how to prepare their designs for printing or outputting to other formats such as PDF or SVG.

Overall, advance CorelDRAW involves mastering the software's advanced features and techniques to create professional-level designs efficiently.

7.1. Freehand Tool, Bezier Tool, Artistic Media Tool, Pen

Line: A line is a path between two points. Lines can consist of multiple segments, and the line segments can be curved or straight. The line segments are connected by nodes, which are depicted as small squares. CorelDRAW provides various drawing tools that let you draw curved and straight lines, and lines containing both curved and straight segments.

7.1.1. Freehand Tool:

Freehand Tool is used to create drawn objects that are not variations of rectangles, spirals or circles and draw **Curved Line**.

How To Use Freehand Tool:

To use **Freehand tool** in Coral Draw, do the following steps:

- Locate the **Freehand tool** in the tool bar located at the left side of your screen.
- Click anywhere on your screen and drag.
- This will make a scalable squiggle following your mouse cursor.
- Release the mouse button
- You can experiment with resizing the object by clicking then dragging any of its eight handles.

- You can move the whole object by clicking the center X and then dragging.

For example:

To create a straight line, click to start the line and click where you want it to end.



Figure. 7.1.1. straight line with freehand tool

7.1.2. Bezier Tool:

Bézier is used for change any object or shape into curves. Bezier tool let you draw lines one segment at a time by placing each node with precision and **controlling** the **shape** of each **curved** segment.

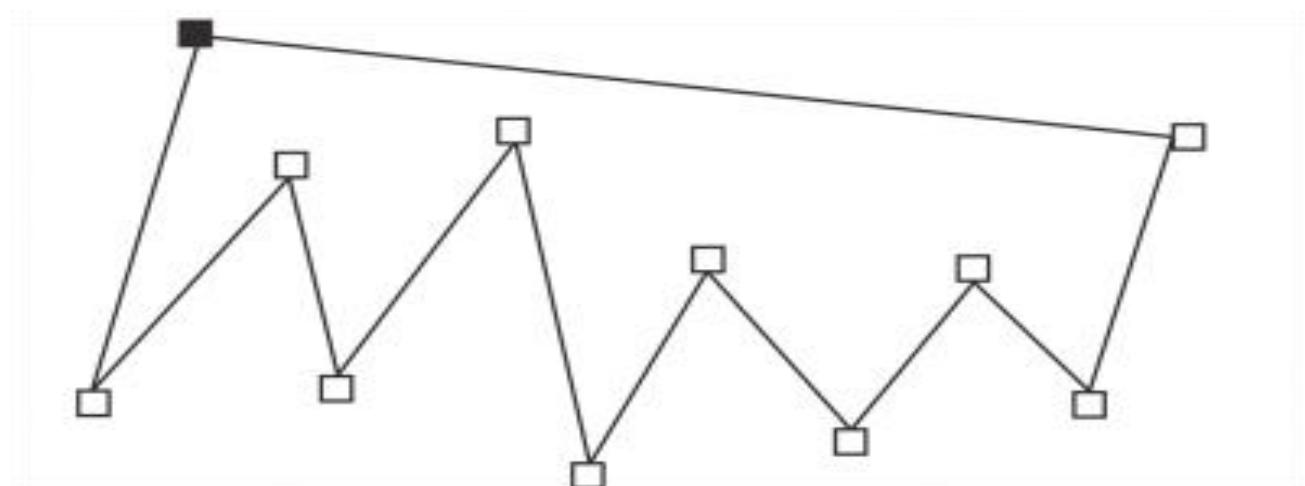


Figure. 7.1.2. Bezier tool

You can draw lines with multiple segments by using the **Bézier** tool and clicking each time you want the line to change direction.

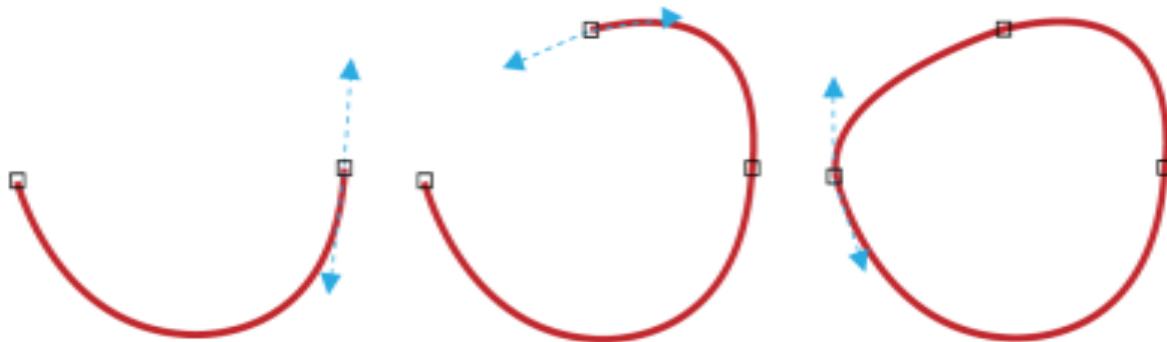


Figure. Figure. 7.1.2. Bezier tool (change directions)

*You can draw curves by using the **Bézier** tool and dragging the control handles at the ends of the Bézier curve.*

To draw a line by using Bézier tool

1. In the toolbox, click the **Bézier tool**
2. Do one of the following.
 - To draw a curved segment, click where you want to place the first node, and drag the control handle to where you want to place the next node. Release the mouse button, and drag the control handle to create the curve.
 - To draw a straight segment, click where you want to start the line segment, and click where you want to end it.

You can add as many segments as you want.

Press the **Spacebar** to finish the line.

7.1.3. Artistic Media Tool:

Artistic Media Tool - Is a revolutionary result of CorelDRAW's Powerline feature which is now called "Preset". This media tool surrounds your drawn lines with specific preset vector object and it can quickly change the look of a simple object, text or a line into a state-of-the-art graphics.

We can use **Artistic Media Tool** to add artistic brush, spray and calligraphic effects by using freehand strokes. It is the key that is used in coral draw for artistic media tool.



Figure. 7.1.3. Examples of Artistic Media Tool

Benefits Of Using Artistic Media Tool:

Using the **Artistic Media Tool**, you can draw lines of varying thicknesses and shapes, paint with a brush or sprayer, or draw calligraphic lines. The tool has five drawing modes: Preset, Brush, Sprayer, Calligraphic, and Expression. You can use the Artistic Media Tool in two ways:

- Draw with it as you do the **Freehand Tool** click and drag to create lines.
- Select an existing object, such as a line or circle, and apply one of the Artistic Media Tool strokes to it.

How To Use Artistic Media Tool:

we can use artistic media tool in five drawing modes:

7.1.3.1. Artistic Media Drawing Modes:

1. Preset Tool:

Preset tool is the first tool among the five drawing modes of artistic media tool. Once the preset tool is active on the click of artistic tool in the tool box, we can start drawing preset stroke like **freehand tool** into any shape. We can apply the stroke on any auto shapes like rectangle or

octagon. These strokes can be further modified by applying different colors and changing the size of it.

2. Brush Tool:

The second tool among the five drawing modes of artistic media tool is called Brush. Once the Brush tool is active, we can start drawing brush strokes to any shape we want. It is also possible to modify it by changing the size of the strokes and applying the brush strokes on various basic shapes. We can see different categories under the Brush section of artistic media tool, of brush strokes like scroll, object, sensual, symbol, artistic, splatter, Calligraphy, texture. We can then use to modify the brush strokes.

3. Sprayer Tool:

Sprayer is the third artistic tool which appears when the artistic tool is active in the tool box. Its strokes give the designer an easy hand to design the layouts and even convert such strokes into sizable objects to meet the requirements. Like preset, and brush tool, modification of the stroke is possible by way of coloring it and changing its size.

We can further separate these strokes into various objects by breaking them apart using Ctrl+K.

4. Calligraphic Tool:

Calligraphic tool enables us to make free hand strokes and modify them by adding color, changing color and size. Freehand smoothing allows us to smooth the curves as we create them. We can use stroke width for increasing the width of the objects. Calligraphic angle enables us to determine the angle of calligraphic objects created.

5. Pressure Tool:

Pressure tool makes the pressure, tilt and styles features active to vary brush strokes. We use Pressure tool to vary the size of the nib. We use Tilt tool to vary the flatness of the nib and use pen bearing to determine the rotation of the nib.

7.1.4. Pen Tool:

pen tool frequently used in the creation of smooth-edged selections, but is not a type of selection **tool**. The **Pen Tool** creates vector paths that convert into selections that in turn use to extract or mask groups of pixels.

7.1.4.1 Drawing Straight Line with Pen Tool

- Select Pen tool
- Click an empty or blank part of the document.
- Move the mouse pointer to the right and click (you will notice the line is jerky)

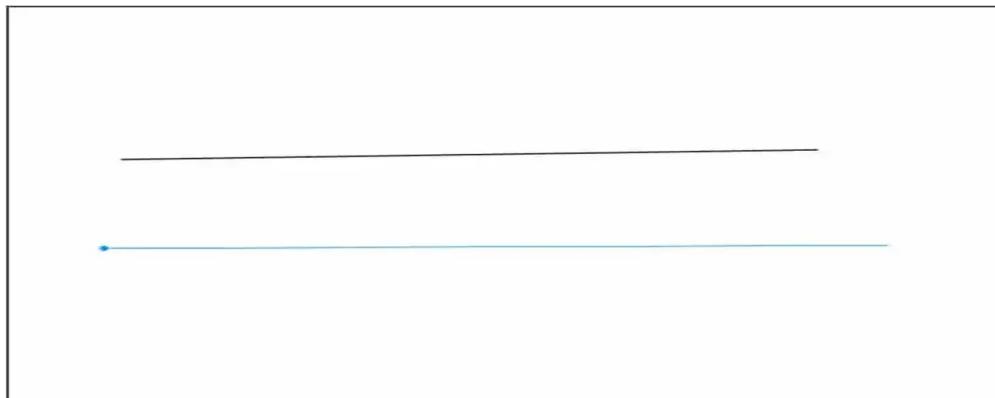


Figure. 7.1.4.1 straight line with Pen Tool

7.1.4.2 To draw a straight line without it looking bumpy:

- Select Pen tool
- Click an empty or blank part of the worksheet
- Hold the Shift key down on the keyboard
- With the Shift key down, move the mouse pointer to the right and click (you will notice the line is straight)

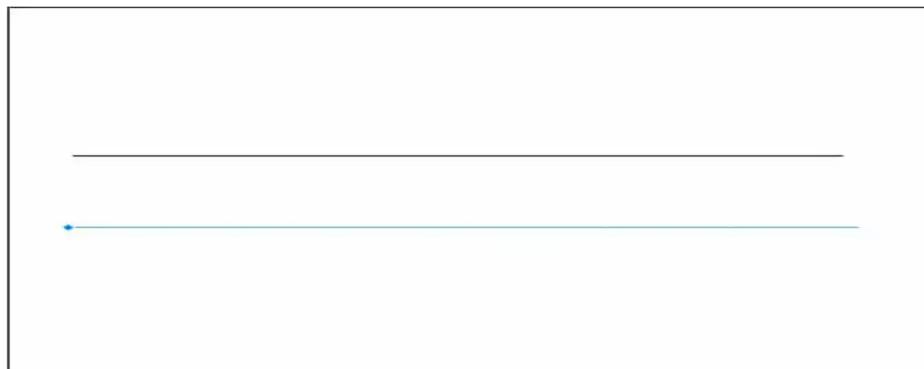


Figure. 7.1.4.2 straight line with Pen Tool (without bumpy)

7.1.4.3 How to Create an Enclosed Shape with Pen Tool

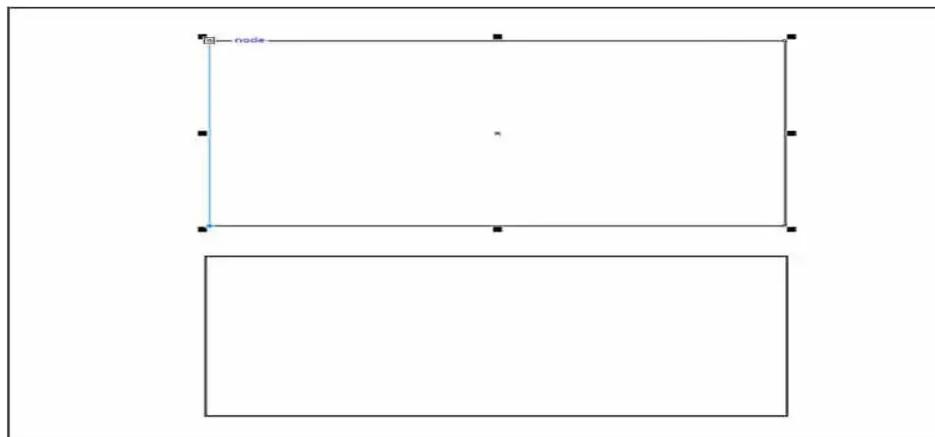


Figure. 7.1.4.3 Enclosed shape with pen Tool

- Select Pen tool
- Click an empty or blank part of the document.
- Hold the Shift key down on the keyboard
- With the Shift key down, move the mouse pointer to the right
- Click to create a connector
- Move the pointer downwards and create next connector
- Move the mouse to the left and click
- Finally, move the mouse pointer upward and click inside the first connector to join the lines

7.1.4.4 Drawing Curves with Pen Tool

- Select Pen tool
- Click an empty or blank part of the worksheet
- With a finger on the Shift key, move the mouse pointer to the right
- Click to make a point
- Now, slant the mouse pointer downwards
- Long click the left mouse button, drag the mouse to create a curve



Figure. 7.1.4.4 Drawing Curves with Pen Tool

- Release the button after getting the right shape

7.2. Poly Line Tool, 3 Point Curve

7.2.1. Poly Line Tool:

Polyline tool is easier to use for quickly drawing a complex line that consists of alternating **curved** and straight segments and allows you to draw in preview mode.



Figure. 7.2.1. Poly Line Tool

With the new Polyline tool, you can also draw circular arcs to create beautiful designs.

To draw an arc with the Polyline tool

1. In the toolbox, click the **Polyline** tool .
2. Click in the drawing window, and then release the mouse button.
3. Hold down **Alt**, and move the pointer to create an arc.
4. Do one of the following:
 - Click to finish the arc, and release **Alt** to return to freehand drawing.
 - Click to finish the arc, and, without releasing **Alt**, move the pointer to draw another arc.
5. Double-click to end the line.

7.2.2. Point Curve:

The **3-point curve tool** lets you draw simple **curved** lines by specifying their width and height. Use this tool to create arc shapes, and circular and symmetrical curves quickly, without manipulating nodes.

How to use 3-point curve tool

1. Select the **3-Point Curve** tool,
2. click where you want to start the curve, and drag to where you want the curve to end.
3. Release the mouse button, and click to set the height of the curve.
- 4.

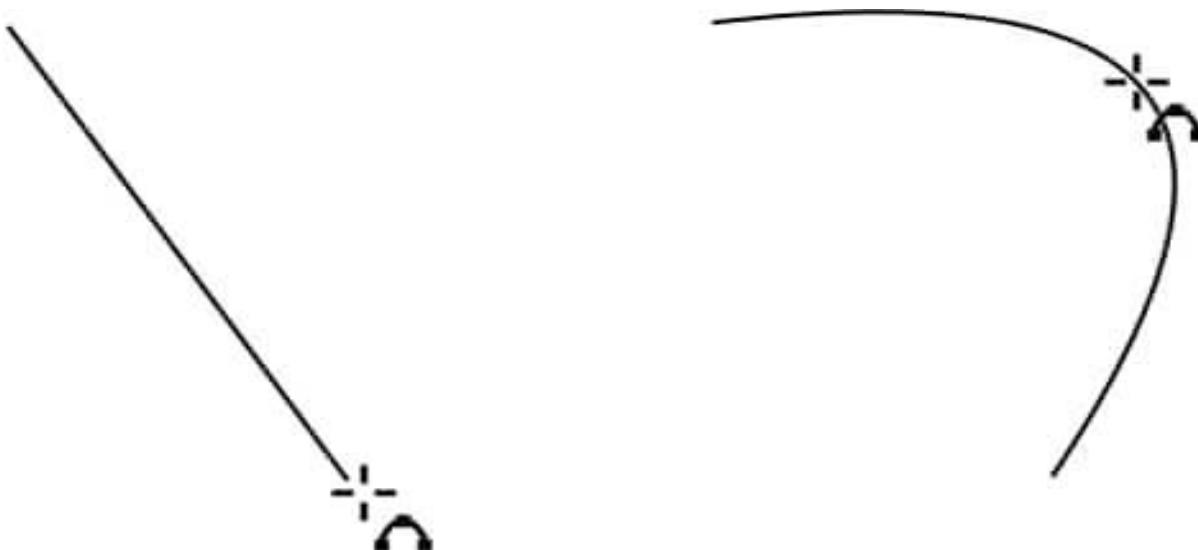


Figure. 7.2.2. Point Curve

- To draw a symmetrical curve, hold down **Shift**, and click to set the height.
- To draw a circular curve, hold down **Ctrl**, and click to set the height.

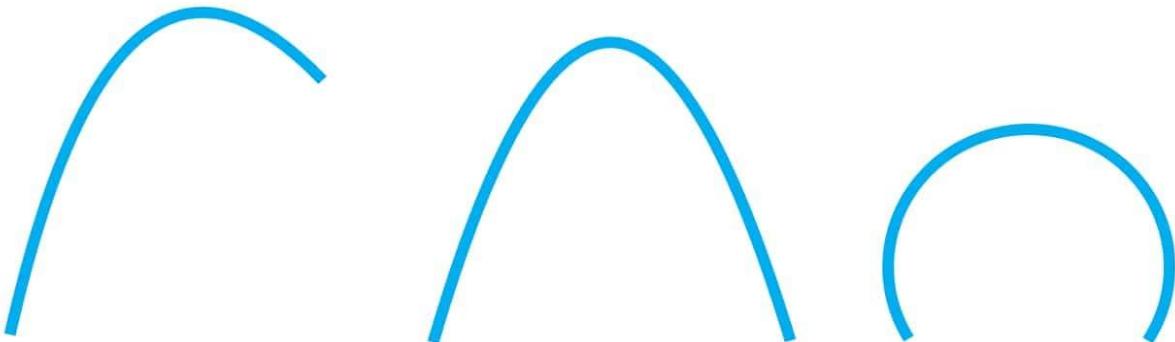


Figure. 7.2.3. Point Curve

From left to right: A simple curve, symmetrical curve, circular curve

7.3. Connector and Dimension Tools

7.3.1. Connector:

You can draw connector lines between objects. Objects stay connected by these lines even when you move one or both objects. Connector lines, which are also known as "flow lines", are used in technical drawings such as diagrams, flowcharts, and schematics.

There are three types of connector lines that you can draw.

The **Straight-line connector** tool lets you draw a straight connector line

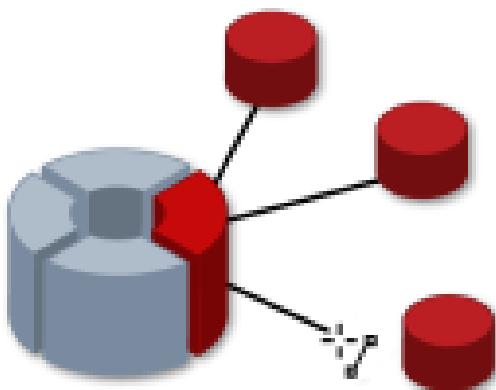


Figure. 7.3.1.1 Straight-line connector tool

The **Right-angle connector** tool lets you draw a right angle connector line.

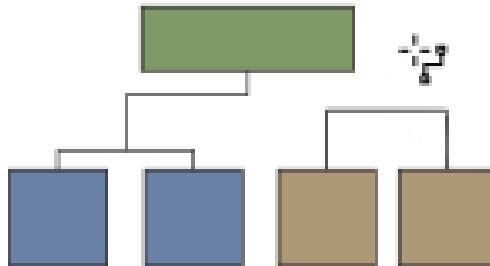


Figure.7.3.1.2 right angle connector tool

The **Rounded right-angle connector** tool lets you draw a right-angle connector line with curved corners.

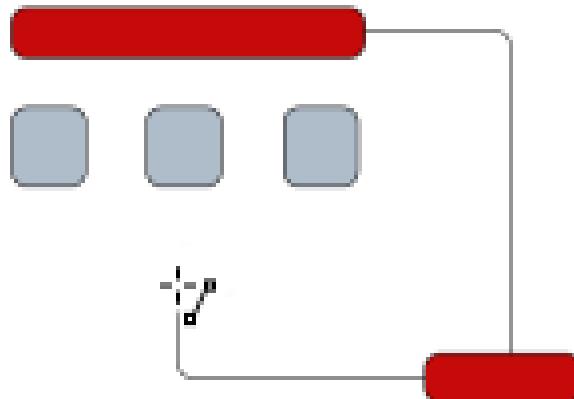


Figure.7.3.1.3 Rounded right-angle connector tool

The **Edit anchor** tool lets you modify connector line anchor points.

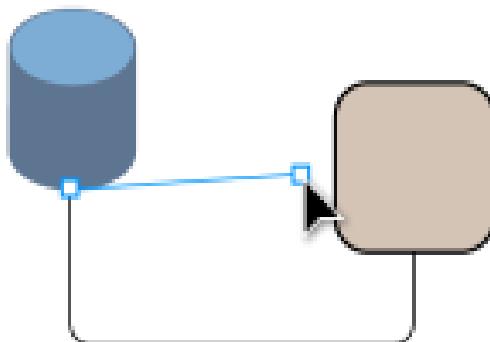


Figure.7.3.1.4 Edit anchor tool

You can edit connector lines by moving, adding, or deleting segments.

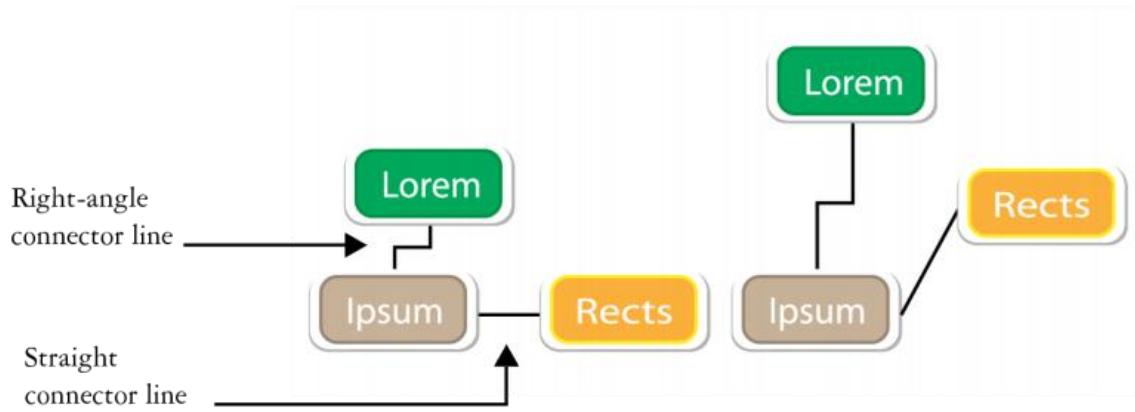


Figure.7.3.1.5 Example of connectors

Note: When you move objects, their connector lines remain attached.

To draw a connector line between two or more objects

In the toolbox, click the Straight-line connector tool button, and then click one of the following:

- 1) **Straight-line connector tool** — to create a straight connector line at any angle
- 2) **Right-angle connector tool** — to create a connector line containing vertical and horizontal segments at right angles
- 3) **Rounded right-angle connector tool** — to create a connector line containing vertical and horizontal elements at rounded right angles

Drag from a node on one object to a node on another object.

7.3.2. Dimension Tools:

By using dimension lines, you can indicate the distance between two points in a drawing or the size of objects.

There are four-dimension line tools,

Parallel: The Parallel dimension tool allows you to draw dimension lines on any angle.

Vertical / horizontal: Vertical or horizontal dimension lines measure the vertical (y-axis) or horizontal (x-axis) distance between any two nodes.

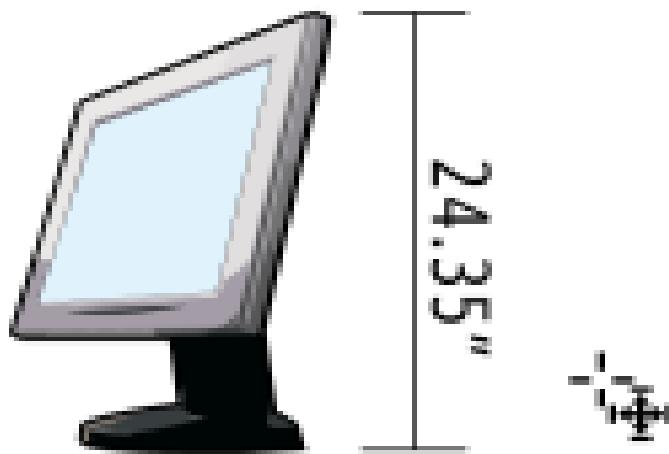


Figure.7.3.2 example of dimension line tool parallel and horizontal

Angular: Angular dimension lines measure angles.

Segment: Segment dimension lines measure the linear distance between the end nodes of a segment, or the linear distance between the two most distant nodes in multiple segments. Segment dimension lines can also measure selected successive segments.

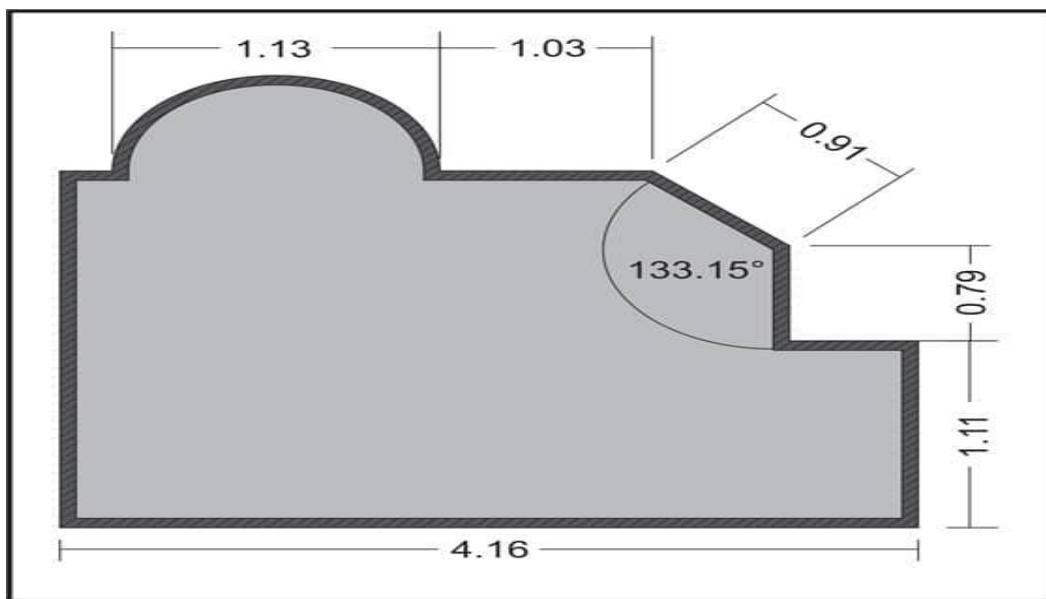


Figure.7.3.2.1 example of dimension line tool Angular and Segment

To draw a vertical, horizontal, or parallel dimension line

1. Do one of the following:
 - ⇒ To draw a parallel dimension line, click the Parallel dimension tool in the toolbox.

- To draw a vertical or horizontal dimension line, click the Horizontal or vertical dimension tool.
2. Click to place the starting point, and drag to where you want to place the endpoint of the dimension line.
 3. Move the pointer to position the dimension line, and click to place the dimension text. By default, dimension text is centered on the dimension line.

To draw an angular dimension line

- 1 . In the toolbox, click the Angular dimension tool .
- 2 . Click where you want the two lines that measure the angle to intersect, and drag to where you want the first line to end.
- 3 . Click where you want the second line to end.
- 4 . Click where you want the angle label to appear.

To draw a segment dimension line

- 1 . In the toolbox, click the Segment dimension tool .
- 2 . Click the segment that you want to measure.
- 3 . Move the pointer to where you want to position the dimension line, and click where you want to place the dimension text.

7.4. Spiral Tool, Polygon Tool

7.4.1. Spiral Tool:

The Spiral tool lets you create and modify spiral paths. You can draw two types of spirals:

1. **Symmetrical:** Symmetrical spirals expand evenly so that the distance between each revolution is equal.
2. **Logarithmic:** Logarithmic spirals expand with increasingly larger distances between revolutions. You can set the rate by which a logarithmic spiral expands outward.

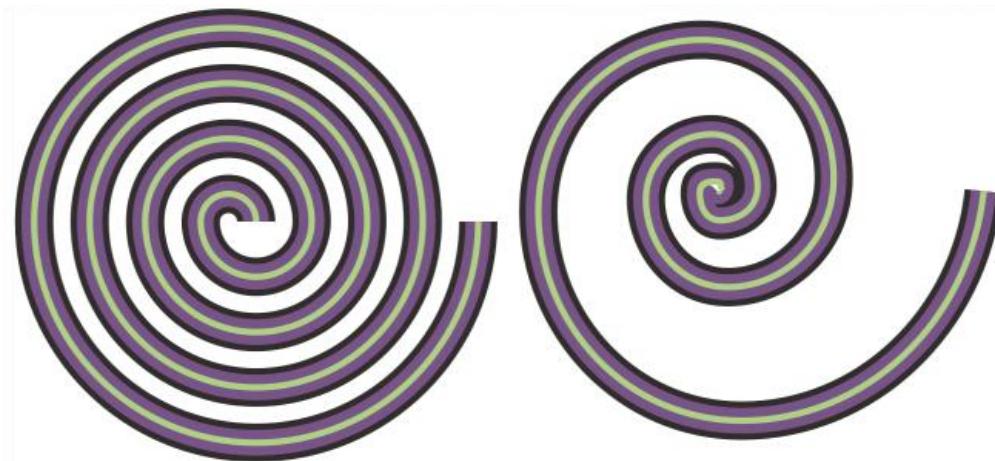


Figure. 7.4.1. A symmetrical spiral (left) and a logarithmic spiral (right)

To Draw a spiral

- 1 . In the toolbox, click the **Spiral** tool .
- 2 . Type a value in the **Spiral revolutions** box on the property bar.
- 3 . On the property bar, click one of the following buttons:
 - **Symmetrical spiral**
 - **Logarithmic spiral**If you want to change the amount by which the spiral expands as it moves outward, move the **Spiral expansion factor** slider.
- 4 . Drag diagonally in the drawing window until the spiral is the required size.

Note:

- ⇒ You can draw a spiral from its center outward by holding down **Shift** as you drag.
- ⇒ You can also draw a spiral with even horizontal and vertical dimensions by holding down **Ctrl** as you drag.

7.4.2. Polygon Tool:

Polygon tool in Corel draw is used to create polygons having two or more straight sides, depends on your requirement. It is also used to re-shape existing polygons.

This tool also lets you draw polygons and two types of stars: perfect and complex. Perfect stars are traditional-looking stars and can have a fill applied to the entire star shape. Complex stars have intersecting sides and produce original results with a fill applied.



Figure. 7.4.2. Polygon Tool

Left to right: Polygon, perfect star, and complex star, each with a fountain fill applied

To draw a polygon

In the toolbox, click the Polygon tool, and drag in the drawing window until the polygon is the size you want.

Note:

You can draw a polygon from its center by holding down **Shift** as you drag.

You can draw a symmetrical polygon by holding down **Ctrl** as you drag.

To draw stars

- **Draw a perfect star:**

In the toolbox, click the Star tool, and drag in the drawing window until the star is the size you want.

- **Draw a complex star:**

In the toolbox, click the Complex star tool, and drag in the drawing window until the star is the size you want.

7.5. Graph Paper Tool, Complex Shape tools

7.5.1. Graph Paper:

Graph paper, coordinate paper, grid paper, or squared paper is writing paper that is printed with fine lines making up a regular grid. The lines are often used as guides for plotting graphs of functions or experimental data and drawing curves.

You can draw a grid and set the number of rows and columns. A grid is a grouped set of rectangles that you can break apart.

You can change the default settings of the Graph Paper tool to specify the number of rows and columns for new grids.

Example of Graph paper

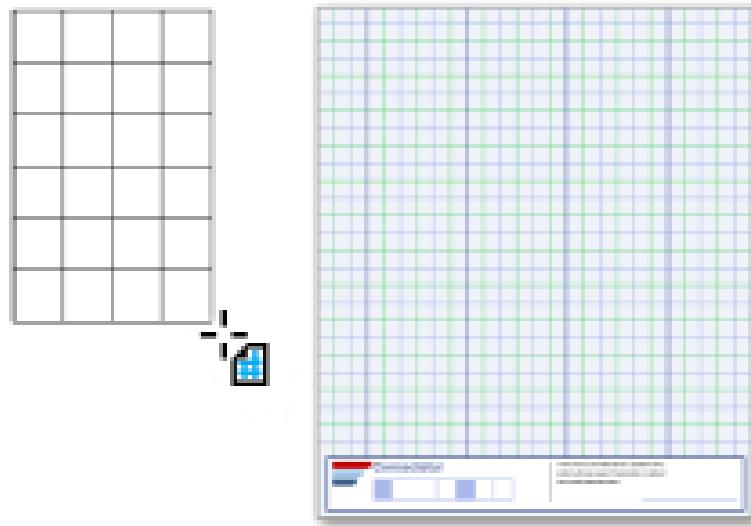


Figure. 7.5.1. Graph Paper

To draw a grid:

1. In the toolbox, click the Graph paper tool.
2. Type values in the top and bottom portions of the Columns and rows box on the property bar.

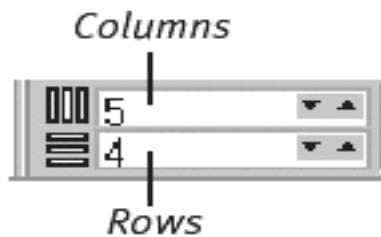


Figure. 1

The value you type in the top portion specifies the number of columns; the value you type in the bottom portion specifies the number of rows.

3. Point to where you want the grid to appear.
4. Drag diagonally to draw the grid.

If you want to draw the grid from its center point outward, hold down **Shift** as you drag; if you want to draw a grid with square cells, hold down **Ctrl** as you drag.

To ungroup a grid:

- 1 . Select a grid by using the **Pick** tool .

Click **Object ▶ Group ▶ Ungroup**.

You can also break apart a grid by clicking the **Ungroup** button on the property bar.

To choose default settings for the Graph Paper tool

- 1 . Click **Tools ▶ Options ▶ Tools**.
- 2 . In the left pane of the dialog box that appears, click **Graph Paper**.
- 3 . Type values in the **Number of columns** and **Number of rows** boxes.

7.5.2. Complex Shape tools:

In CorelDraw it's easy to draw many kinds of complex objects. You don't have to construct them by painstakingly combining individual objects. All you have to do is select a tool from the Object flyout or Perfect Shapes flyout and then click-and-drag to draw the object.

In the following figure the Object toolbox flyout has tools for drawing polygons, spirals, and grids. (You have already learnt these tools)

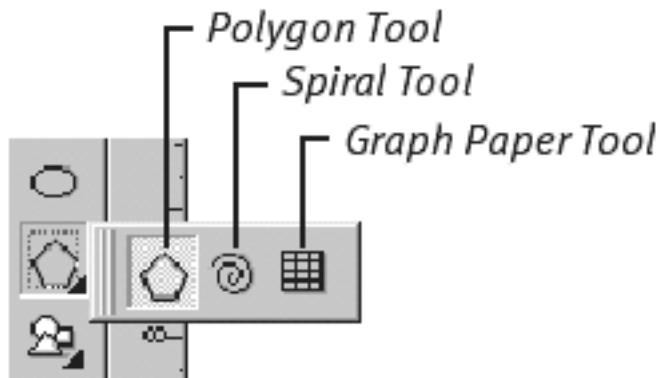


Figure. 7.5.2. Complex Shape tools

Select a tool from the Perfect Shapes flyout to draw teardrops, arrows, stars, flowchart symbols, and other complex shapes.



The Polygon tool can be used to create all sorts of different shapes such as gears, pinwheels,

saw blades, sunbursts, and more. Simply create a polygon by using the Polygon tool. On the property bar, you can set the number of sides for your polygon. Then, you can use the Shape tool to manipulate one of those sides. The other sides mimic your changes, creating some very cool, useful shapes.

7.6. Basic Shapes

Basic Shapes: CorelDRAW provides several basic shapes, such as rectangles, circles or ellipse, polygon, and stars, that you can use to create custom shapes. To create a basic shape, select the shape tool from the toolbox and draw the shape on the page. You can then adjust the size, position, and orientation of the shape as needed.

1. **Rectangle:** A rectangle is a four-sided shape with opposite sides of equal length and equal angles at each corner. To create a rectangle in CorelDRAW, you can use the Rectangle tool or the Rectangle Frame tool.
2. **Circle:** A circle is a round shape with a constant radius from the center point to its edge. To create a circle in CorelDRAW, you can use the Ellipse tool or the Circle tool.
3. **Triangle:** A triangle is a three-sided polygon with three angles. To create a triangle in CorelDRAW, you can use the Polygon tool or the Smart Drawing tool.
4. **Line:** A line is a straight path that connects two points. To create a line in CorelDRAW, you can use the Line tool or the Pen tool.
5. **Polygon:** A polygon is a closed shape with three or more straight sides. To create a polygon in CorelDRAW, you can use the Polygon tool or the Smart Drawing tool.
6. **Star:** A star is a shape with multiple points, typically five or more. To create a star in CorelDRAW, you can use the Star tool or the Smart Drawing tool.
7. **Arrow:** An arrow is a shape that points in a specific direction. To create an arrow in CorelDRAW, you can use the Line tool or the Arrow tool.

7.6.1 Drawing basic shapes — such as rectangles, ellipses, polygons, and stars — is quick and easy. All the tools you need are easily accessible from the following flyouts in the toolbox: the Rectangle flyout, the Ellipse flyout, and the Object flyout.

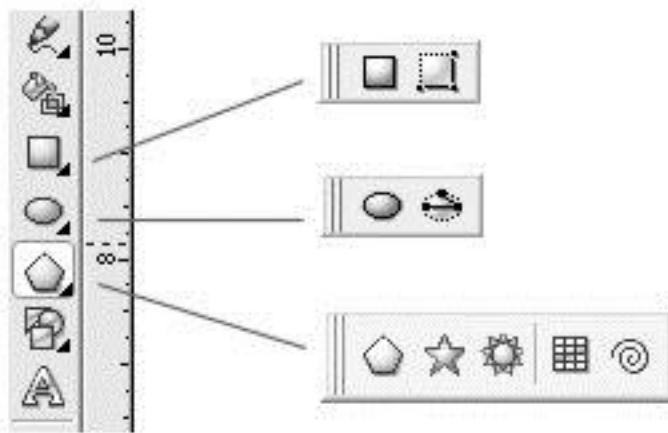


Figure. 7.6.1 Basic Shapes

Top to bottom: the Rectangle flyout, the Ellipse flyout, and the Object flyout

7.6.2 Drawing rectangles and squares

You can draw a rectangle or a square by dragging diagonally with the Rectangle tool or by specifying the width and height with the 3 point rectangle tool. You'll find the 3 point rectangle tool very useful for creating rectangles at an angle. Both tools are located on the Rectangle flyout.



- **To draw a rectangle**, open the Rectangle flyout, click the Rectangle tool , and drag in the drawing window until the rectangle is the size you want.
- **To draw a square**, click the Rectangle tool, hold down Ctrl, and drag in the drawing window until the square is the size you want.
- **To draw a rectangle at an angle**, click the 3-point rectangle tool . In the drawing window, point to where you want to start the rectangle, drag to draw the width, and release the mouse button. Move the pointer to draw the height, and click.



Figure. 7.6.2 Basic Shapes

Drawing a rectangle at an angle with the 3-point rectangle tool

- ⇒ You can draw a rectangle from its center outward by holding down Shift as you drag with the Rectangle tool.
- ⇒ You can draw a square from its center outward by holding down Shift + Ctrl as you drag with the Rectangle tool.
- ⇒ You can draw a rectangle that covers the drawing page by double-clicking the Rectangle tool.

7.6.3 Drawing ellipses, circles, arcs, and pie shapes

You can draw an ellipse or a circle by dragging diagonally with the Ellipse tool, or you can draw an ellipse by using the 3-point ellipse tool to specify its width and height. The 3-point ellipse tool lets you quickly create an ellipse at an angle, eliminating the need to rotate the ellipse. Both tools are located on the Ellipse flyout.



After you draw an ellipse or a circle, you can easily change it into a pie shape or an arc.



Figure 7.6.3 Drawing ellipses, circles, arcs, and pie shapes

Left to right: a circle, a pie shape, and an arc

- To draw an ellipse, open the Ellipse flyout, click the Ellipse tool , and drag where you want to place it. Holding down Ctrl while dragging with the Ellipse tool draws a circle, while holding down Shift draws an ellipse from the center.
- To change the ellipse into a pie shape or an arc, click the Pie button  or the Arc button  on the property bar.
- To draw an ellipse at an angle, click the 3 point ellipse tool , and drag in the drawing window to draw the centerline of the ellipse at the angle you want. Next, move the pointer to define the height of the ellipse, and click.

Note: The centerline runs through the center of the ellipse and determines its width.

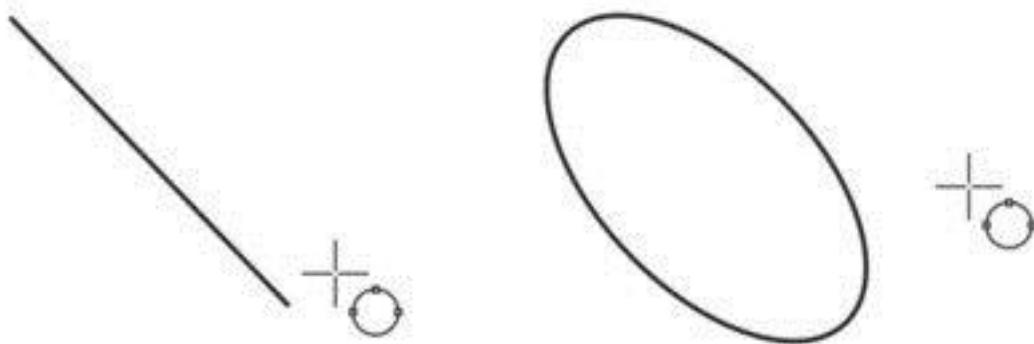


Figure 7.6.3.1

Drawing an ellipse at an angle with the 3 point ellipse tool



Figure 7.6.3.2

Left to right: a circle, a pie shape, and an arc

7.6.4 Drawing polygons and stars

You can draw polygons and two types of stars: perfect stars, which have a traditional star appearance and complex stars, which have intersecting sides. With perfect stars, you can apply a fill to the entire star shape. With complex stars, you can produce unique results when you apply a fill.



7.6.4 Drawing polygons and stars

Left to right: a polygon, a perfect star, and a complex star, each with a fountain fill applied
The tools you need to create polygons and stars are located on the Object flyout.



- To draw a polygon, open the Object flyout, click the Polygon tool , and drag in the drawing window until the polygon is the size you want. You can draw a polygon from its center by holding down Shift as you drag. Also, you can draw a symmetrical polygon by holding down Ctrl as you drag.
- To draw a perfect star, click the Star tool , and drag in the drawing window until the star is the size you want.
- To draw a complex star, click the Complex star tool , and drag in the drawing window until the star is the size you want.

7.7. Symbol Character

Symbol characters in CorelDRAW refer to special characters, icons, and symbols that are not typically found on a standard keyboard. These symbol characters can be used to add visual interest and communicate meaning in design projects, such as logos, icons, and user interfaces. In CorelDRAW, you can access a wide variety of symbol characters by using the Symbol Manager. The Symbol Manager contains a library of symbol fonts, which are fonts that contain a wide range of symbol characters instead of traditional alphanumeric characters.

To access the Symbol Manager in CorelDRAW, you can go to the Text menu, select "Insert Symbol," and then choose the desired symbol font from the list. Once you have selected the symbol font, you can browse through the available symbol characters and insert them into your design project

7.7.1. Inserting special characters, symbols, and glyphs

Using the **Insert character** docker, you can find and insert special characters, symbols, and glyphs (variations of individual characters or character combinations) of OpenType fonts.

Filtering

All characters, symbols, and glyphs included in a font are displayed by default, but you can filter character subsets to display only the characters you want. For example, you can display only currency symbols or numbers, or you can display only Cyrillic characters and symbols.

Characters included in a font are organized in the following categories:

Common — includes arrows, currency, mathematical symbols, numbers, punctuation marks, and separators as well as CJK symbols and punctuation marks (used in Asian scripts)

Scripts — includes the scripts that the selected font supports, such as Latin, Greek, Cyrillic, Hiragana and Katakana, Han, Arabic, or Hebrew scripts

OpenType — includes the OpenType features provided by the selected font such as standard ligatures, discretionary ligatures, fraction, alternate annotation forms, and more.

OpenType fonts

The **Insert character** docker is ideal for viewing and applying the OpenType features provided by OpenType fonts. The default view shows a list of characters in which the glyphs for individual

characters appear grouped. Alternatively, you can display a longer list that shows available glyphs at a glance.

Viewing character position

Each selected character appears against a set of blue lines that let you preview its position in relation to the text baseline.

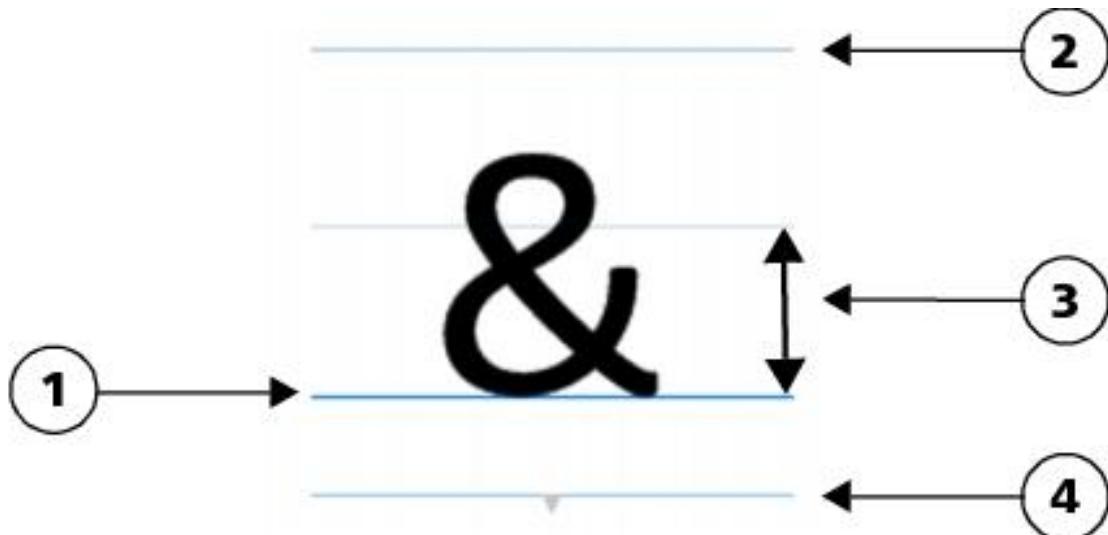


Figure. 7.7.1.

1) Text baseline

3) Font x-height

2) Ascender line

4) Descender line

Most recently used special characters

You can use the list of most recently used special characters to copy characters that you use often. The list retains the font attributes of most recently used characters and any OpenType features that were applied. You can manage the list by removing characters that you no longer need.

To add a special character, symbol, or glyph

Using the **Text** tool , click where you want to add the special character.

- 2 . Click **Text ▾ Insert character**.
- 3 . In the **Insert character** docker, choose a font from the **Font list** box.
- 4 . Double-click a character in the **Character and glyph** list.

If you cannot find the character you want, open the **Character filter** list box, and enable the **Entire font** check box.

7.8 Text Tool

The text tool in CorelDRAW is a powerful feature that allows users to add and manipulate text in their designs. With the text tool, you can create and edit text, adjust its font, size, color, style, and alignment, as well as apply various effects and formatting options.

Types Of Text tool In Corel DRAW:

There are two kinds of text in **Corel DRAW**:

7.8.1. Artistic text:

We use **Artistic text** for small amounts of texts, usually just one or two lines. It works well for things like headings, text effects and captions.

The appearance and placement of **artistic** text can be thoroughly manipulated, character per character if necessary.

7.8.2. Paragraph text:

We use **Paragraph texts** for long number of texts.

Instead of editing the lines and characters, you determine the shape of a container for the text to reside in. These containers are normally rectangular, but can be any shape you want. It is also possible to distribute a single block of text over many shapes. although **artistic** text and **paragraph** text have different purposes. They can be converted from one type into another.



Figure.7.8.2 Artistic text (left) and paragraph text (right)

Some of the key features of the text tool in CorelDRAW include:

- ⇒ **Text creation:** You can add text to your design by clicking and dragging a text box on the page, or by clicking on the text tool and typing directly onto the page.
- ⇒ **Font selection:** CorelDRAW provides a wide range of font choices, including both standard and decorative fonts. You can easily change the font type, size, color, and style of your text using the options in the font menu.
- ⇒ **Text formatting:** The text tool provides a variety of formatting options, such as bold, italic, underline, subscript, superscript, and more. You can also adjust the line spacing, kerning, and tracking of your text.
- ⇒ **Effects and styling:** CorelDRAW includes a range of effects and styling options that you can apply to your text, such as shadows, outlines, gradients, and transparency.

7.8.2.1 Pasting and importing text

We can import the text inside an existing or new document. It allows us to author text within the word processor and includes it to the CorelDRAW document. The following file formats of text are supported by CorelDRAW:

- RTF (Rich Text Format) files
- WPD (WordPerfect) file
- DOCX (Microsoft Word Open XML Document) files
- DOC (Microsoft Word Document) files
- TXT (ANSI Text)

To import any text inside the document

To import any text inside the document, follow the below steps:

- 1) With the **Text tool**, place the cursor within a text frame where we wish to import text.
When we don't have any text frame inside a document, proceed from step 2 and skip the first step.
2. Press **File > Import**.

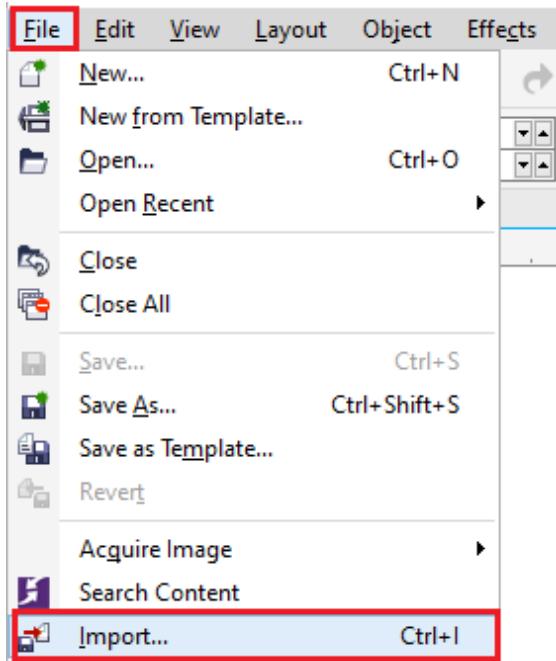


Figure. 7.8.2.1

3. Select the folder and drive in which the file can be stored.
4. Press the filename.
5. Press Import.

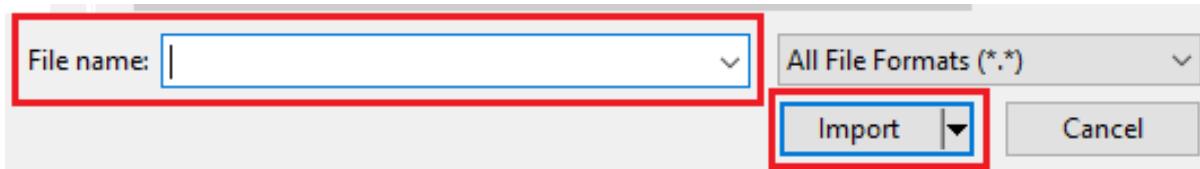


Figure. 7.8.2.2

When we wish to use CMYK black on an imported black text, click on the Force CMYK black checkbox. It is available if we select any option that can maintain the text formatting.

Inserting artistic text

The artistic text can be used to add any short line or individual word of the text, like the headlines to the document. We can use the effect's huge variety to an artistic text, like contour or drop shadow.

In addition, we can assign some hyperlinks to the text.

To insert artistic text

To insert artistic text, follow the below steps:

- o With the **Text** tool, press anywhere over the drawing page, and then type.

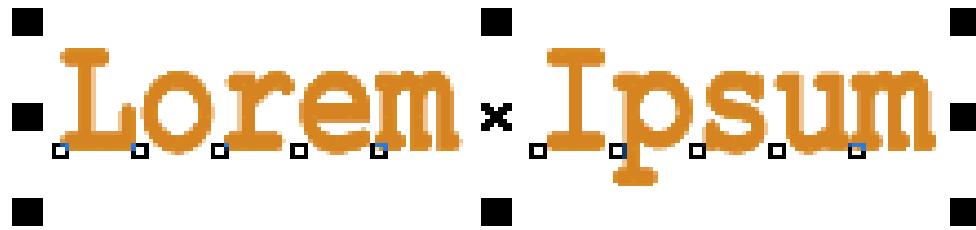


Figure. 7.8.2.3

We can convert the artistic text into paragraph text. We have to select the artistic text with the help of the **Pick** tool, and press **Text > Convert to paragraph text**.

Inserting paragraph text

We insert paragraph text within the document with the help of text frames. The Paragraph text, also called "**block text**" is reserved for text's larger bodies that have formatting requirements. We can apply paragraph text if creating, catalogs, newsletters, brochures, and another text-intensive document.

To insert paragraph text, follow the below steps:

1. Press the **Text** tool.
2. Drag within the drawing window for sizing the paragraph text frame.
3. Fill in this text frame.

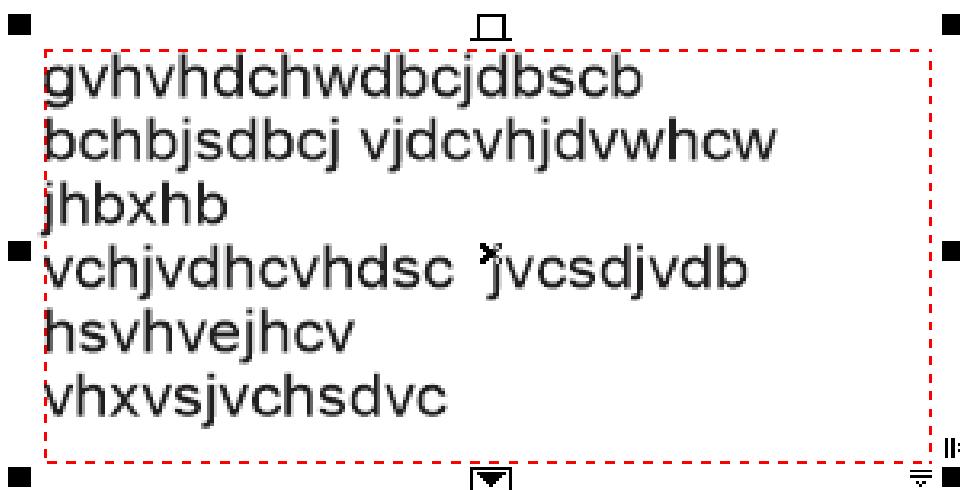


Figure. 7.8.2.3 Inserting paragraph text

To align the paragraph text for the baseline grid

The steps are listed below:

1. Press **View > Grid > Baseline grid**.

You can also select and manipulate text boxes using the Select tool, and change the formatting of the entire text box in the Select tool properties.

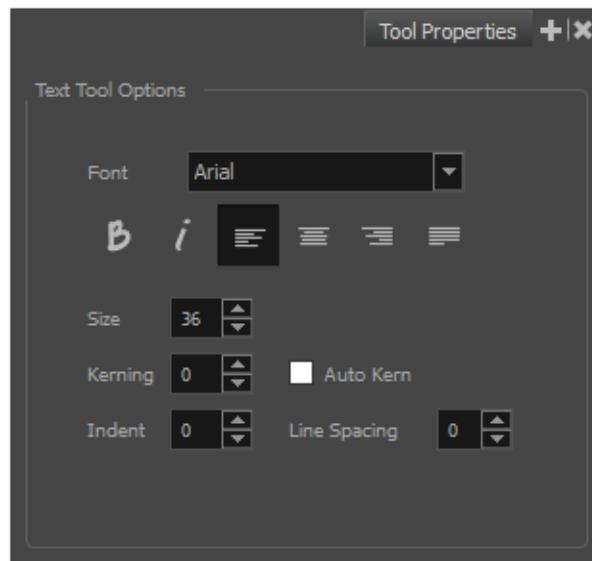


Figure. 7.8.2.4 tool properties

7.9. Interactive Tools for Fast Changes

CorelDRAW is a powerful vector graphics editor that provides many interactive tools for making fast changes to your designs. Each tool applies a special effect and we can modify the object in different ways. Here are some of the most useful tools:

- 7.10 . Interactive Blend**
- 7.11 . Interactive Contour**
- 7.12 . Interactive Distort**
- 7.13 . Interactive Drop Shadow**
- 7.14 . Interactive Envelope**
- 7.15 . Interactive Extrude**
- 7.16 . Interactive Transparency**
- 7.17 . Eyedropper Tool Flyout**
- 7.18 . Outline Tool Flyout**
- 7.19 . Fill Tool Flyout**

7.10. Interactive Blend Tool:

In CorelDRAW, blends are used to transition from one object to another, including transitions between colors, shape, and other properties. The **Blend** tool is part of the **Effects** tool group.

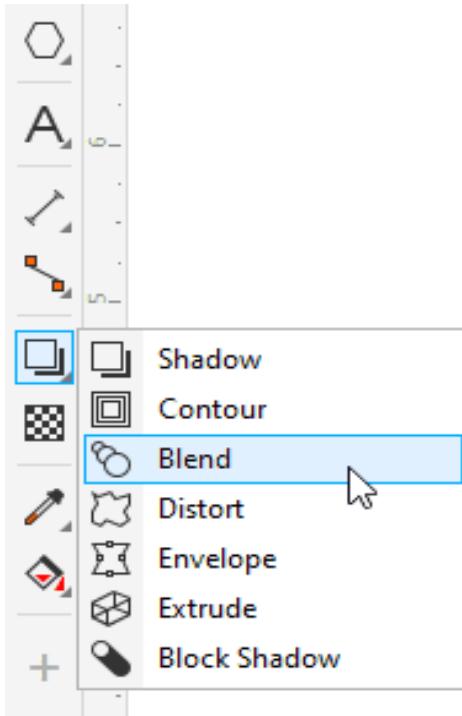


Figure. 7.10. Interactive Blend Tool

Blend Tool Basics

This example includes a rectangle and a star, with different fill colors, outline colors, and outline widths.

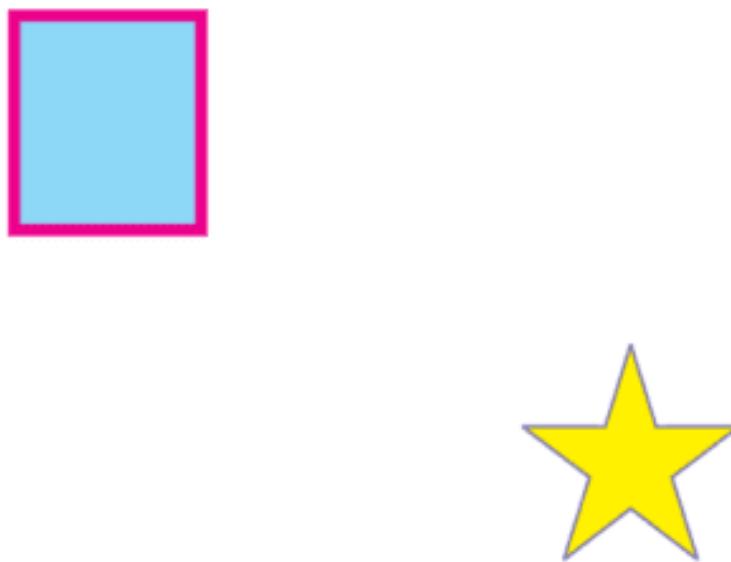


Figure. 7.10.1 Example

When the **Blend** tool is active, and the cursor is over an object that can be blended, it has a blend symbol. Drag between the two objects, and the blend preview is indicated by blue outlines.

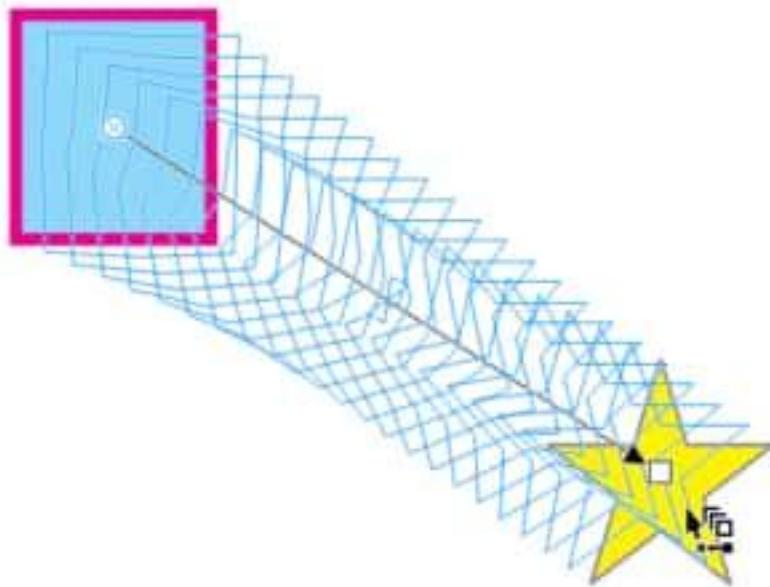


Figure. 7.10.2 Example

When you release the mouse button, the blend is created. This blend consists of 20 evenly-spaced shapes that transition from rectangle to star, and whose fill colors, outline colors, and outline widths also transition.

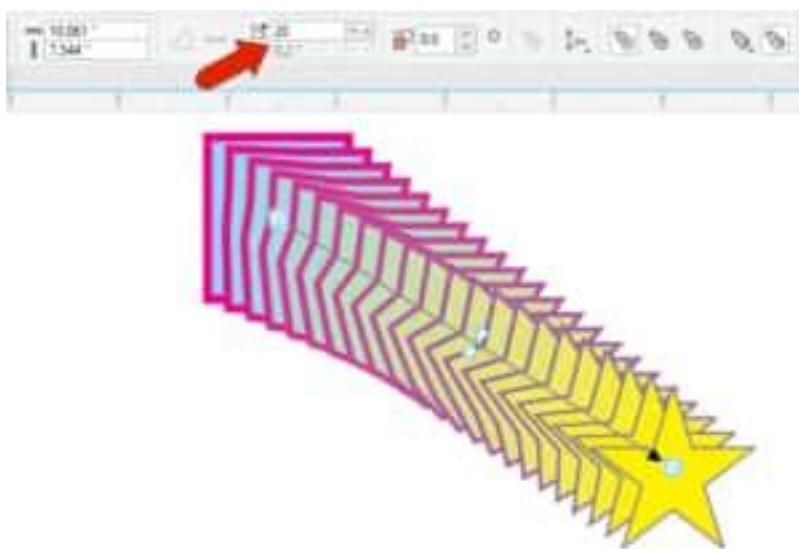


Figure. 7.10.3 Example

Note that color blends can be created for objects with uniform or fountain fills, but not for bitmap, texture, or vector fills.

Start and end objects are marked with white squares and are referred to as control objects. The arrow points to the end control object. Either control object can be dragged to a new spot, which updates the blend.

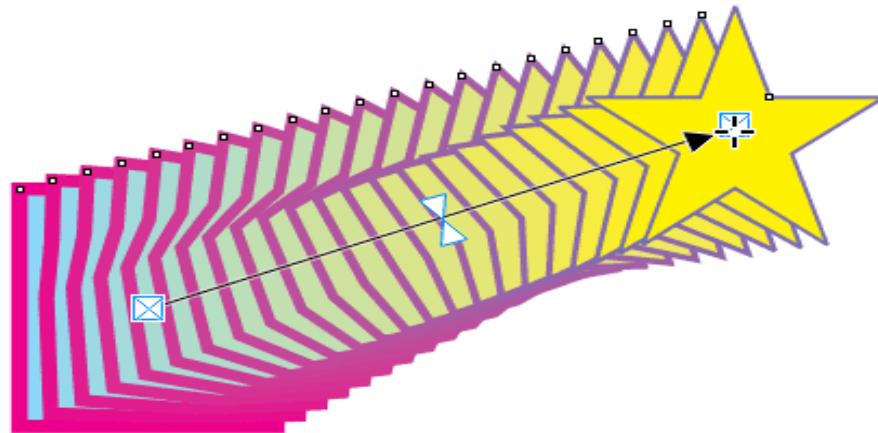


Figure. 7.10.4 Example

Editing a Blend

On the Property Bar, or on the docker, you can change the number of blend objects, add a twisting angle and make the path a loop to match the angle, and change the color blend from direct to clockwise along the color wheel or counterclockwise.

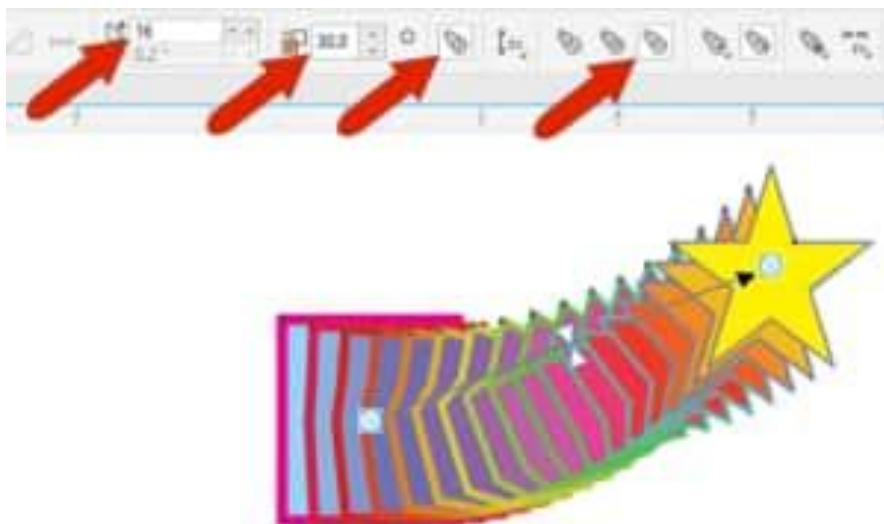


Figure. 7.10.5 Editing

You can click the **Object and Color Acceleration** icon to adjust the rates of change for object shape and color, either together or separately when you turn off the lock icon.

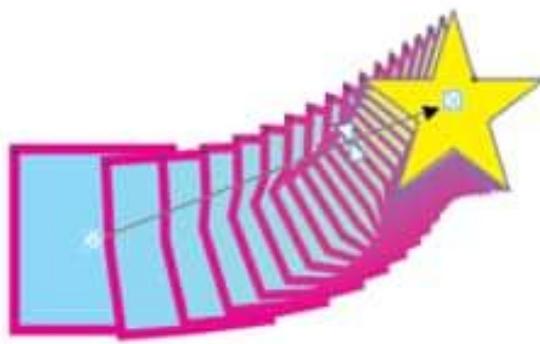
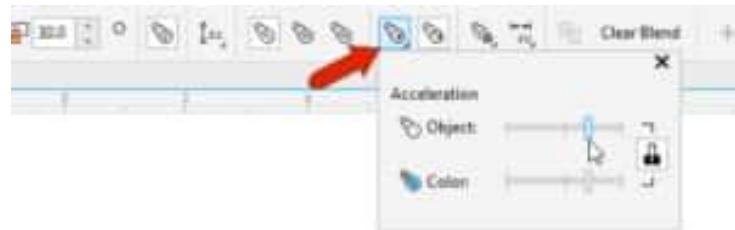


Figure. 7.10.6 Editing

You can also adjust change rates on the blend itself. Each triangle control handle can be dragged separately to adjust color change or shape change rates, and double-clicking either triangle brings the two triangles back together. Double-clicking on either locked triangle unlocks them again.

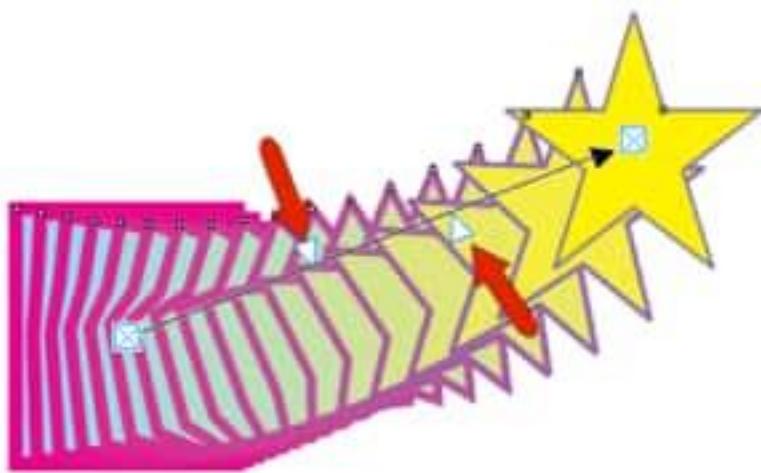


Figure. 7.10.7 Editing

To see which object is the start and which is the end, click the **Starting and Ending Objects** icon, and choose **Show Start** or **Show End**.

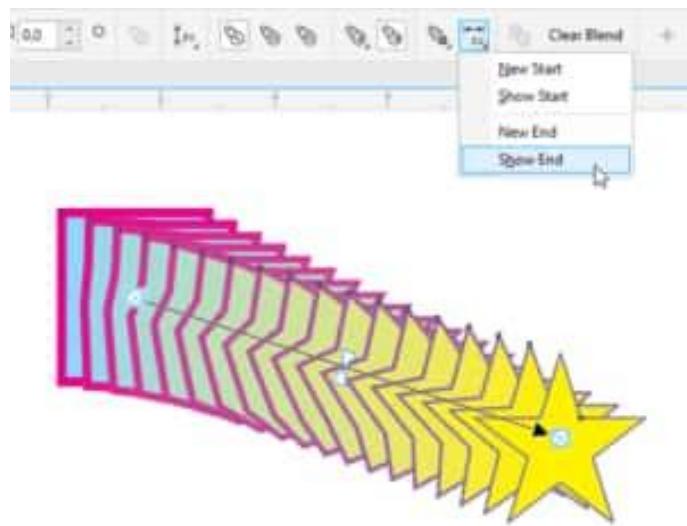


Figure. 7.10.8 Editing

This option switches temporarily to the **Pick** tool, with the start or end object selected. If you make a change to the selected control object, such as to its outline width, or to its fill color by clicking a color swatch, the blend adjusts accordingly.

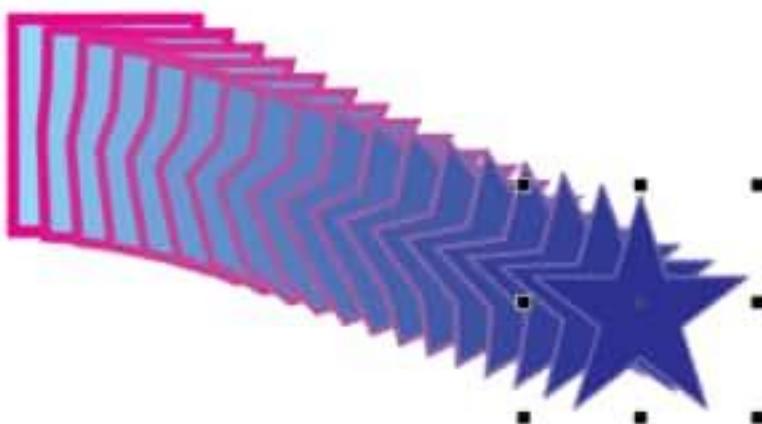


Figure. 7.10.9 Editing

To reverse the blend start and end order, you can choose **Object > Order > Reverse Order**.

Any changes to the shape of either start or end object will also affect the blend. For example, if you use the Shape tool to adjust or add nodes, the transitional shapes will update as well.

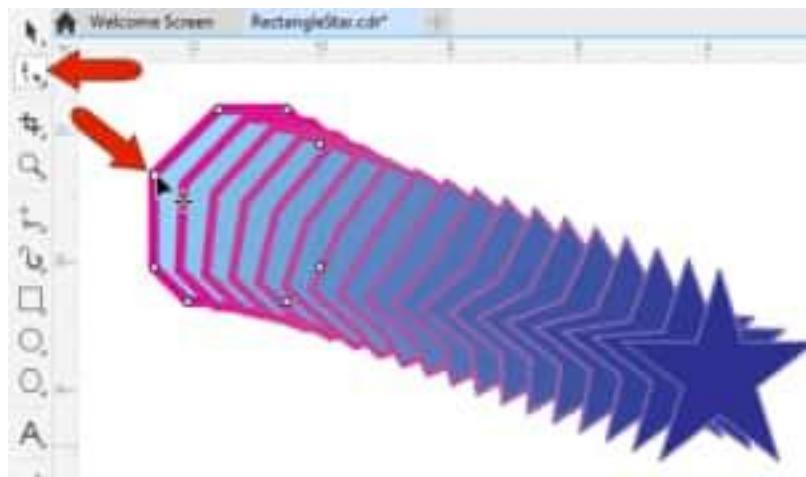


Figure. 7.10.10 Editing

Creating 3D Effects using Blends

The **Blend** tool is commonly used for adding 3D effects to objects. In this example, a blend created a tunneling effect between two rectangles with no fill, a gleaming or reflective effect from an ellipse with a fountain fill, and a 3D text effect.



Figure. 7.10.11 Editing

7.11. Interactive Contour

A contour is an effect created by adding evenly spaced, concentric shapes inside or outside the borders of an object. Contours can be used to create interesting 3D effects, such as shading in complex illustrations, or for creating cuttable outlines to be used by devices such as plotters, engraving machines, and vinyl cutters. Contours can be applied to objects, groups of objects, and text.

Contour Tool Basics

The **Contour** tool is part of the **Effects** tool group.

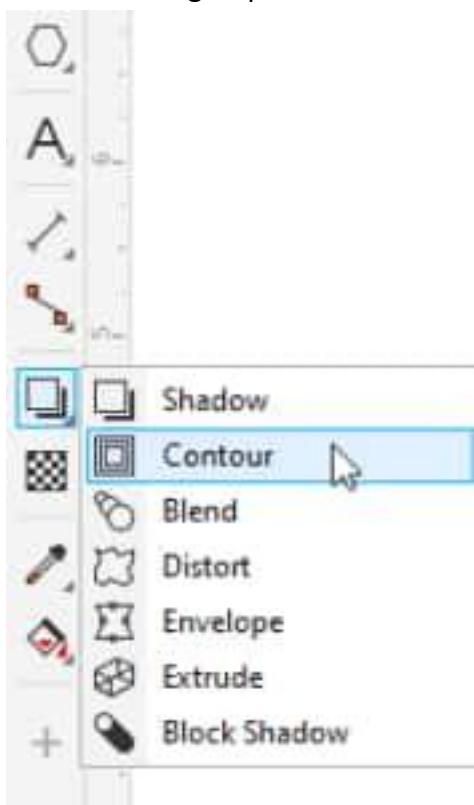


Figure. 7.11. Interactive Contour

When the **Contour** tool is active, if no object is pre-selected, you can click the object to contour, and the contour options are displayed on the **Property Bar**. If an object was pre-selected before activating the **Contour** tool, the **Property Bar** displays the contour options.

In this example, one contour step was applied, which follows the shape around at a constant offset of the specified distance, with the specified fill and outline colors.

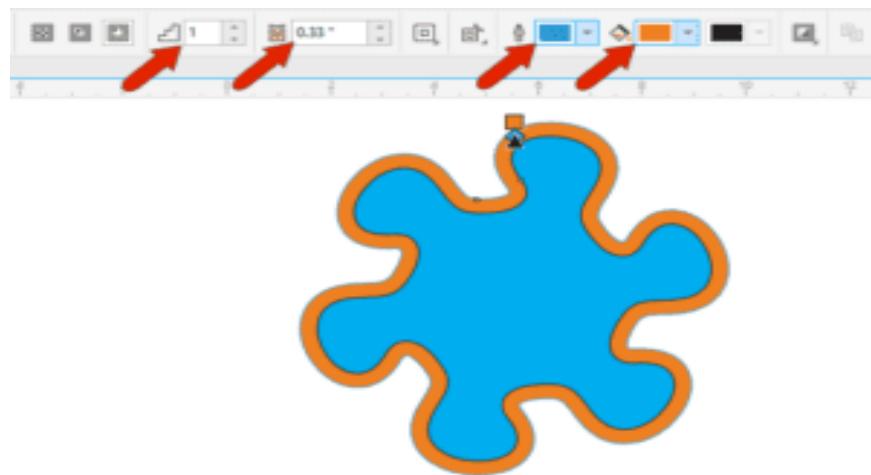


Figure. 7.11.1 Interactive Contour

Clicking **Inside Contour** places the new shape inside the object, and clicking **Outside Contour** places it along the outside. We'll look at the **To Center** option a bit farther on.

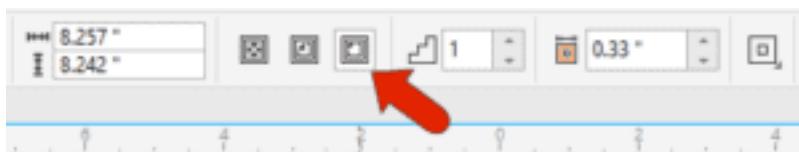


Figure. 7.11.2 Interactive Contour properties

You can add steps to increase the number of contours, which proceed from the object's fill color to the contour color.

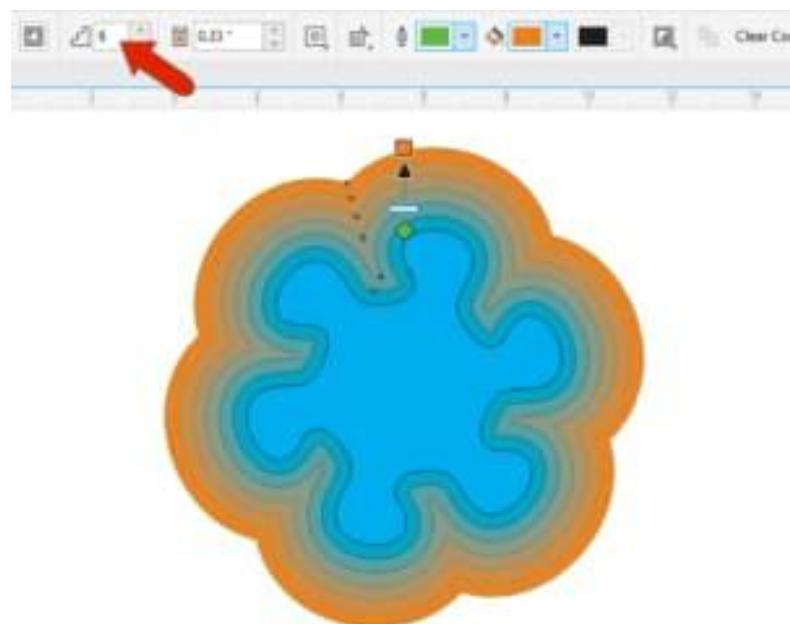


Figure. 7.11.3 Interactive Contour properties

You can change the offset distance, which is the distance between steps, by dragging the fill square swatch, or you can enter the distance manually on the **Property Bar**.

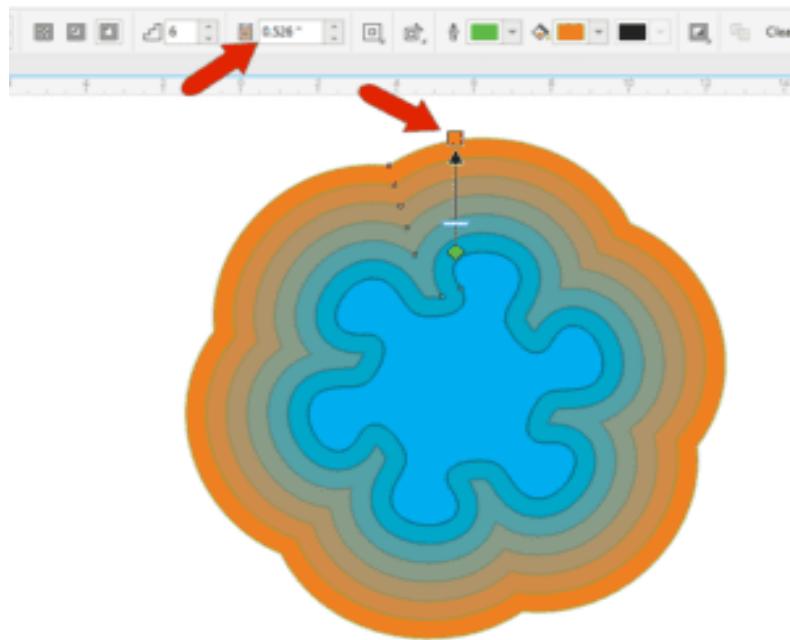


Figure. 7.11.4 Interactive Contour properties

You can also drag the swatch to switch between inside and outside contours.

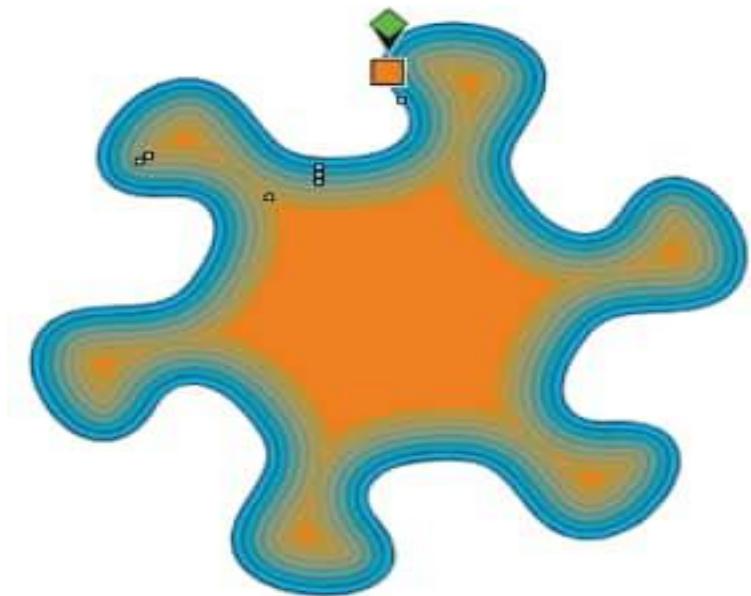


Figure. 7.11.5 Interactive Contour properties

Contour outline and fill color can be set by clicking the swatches on the **Property Bar**, or you can drag a swatch directly onto either the outline diamond or the fill square.

The number of contour steps can also be adjusted by dragging the slider, which updates the contour offset distance.

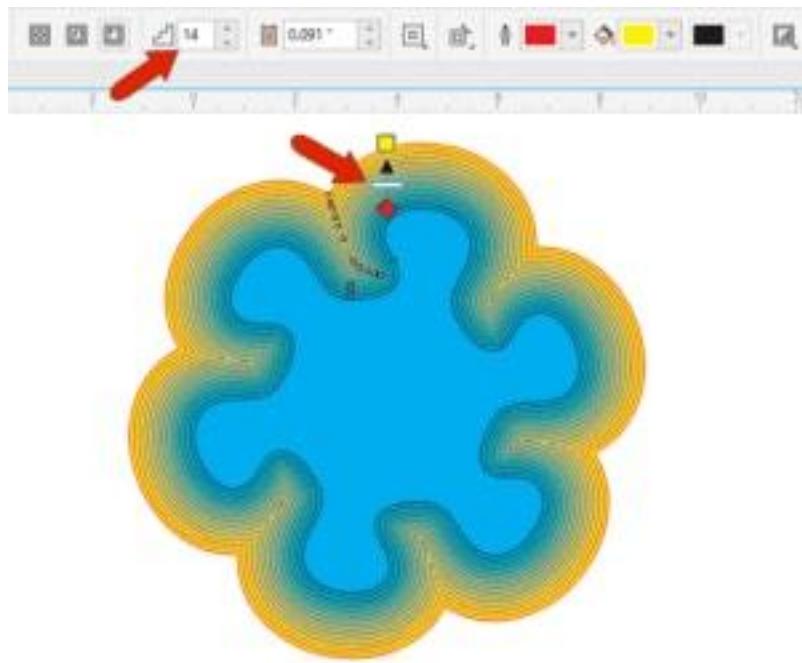


Figure. 7.11.6 Interactive Contour properties

By default, the contour colors change gradually from the object's original fill color to the contour fill color. The same applies to the change between the original and contour outline colors. You can switch the color change progression from the default linear to clockwise or counter-clockwise along the color wheel.

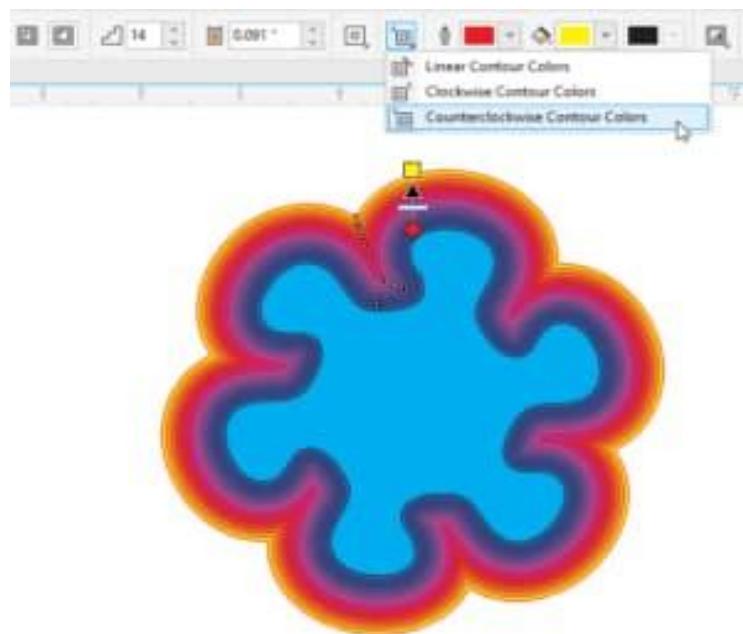


Figure. 7.11.7 Interactive Contour properties

By default, all contours have the same distance between steps, as well as the same rate of color change. To change this, you can click the **Object and Color Acceleration** icon, and adjust both rates of change at once, so that change happens more quickly in the outer contours or in the inner contours. You can click the lock to separate object and color changes, so that both can be adjusted separately.

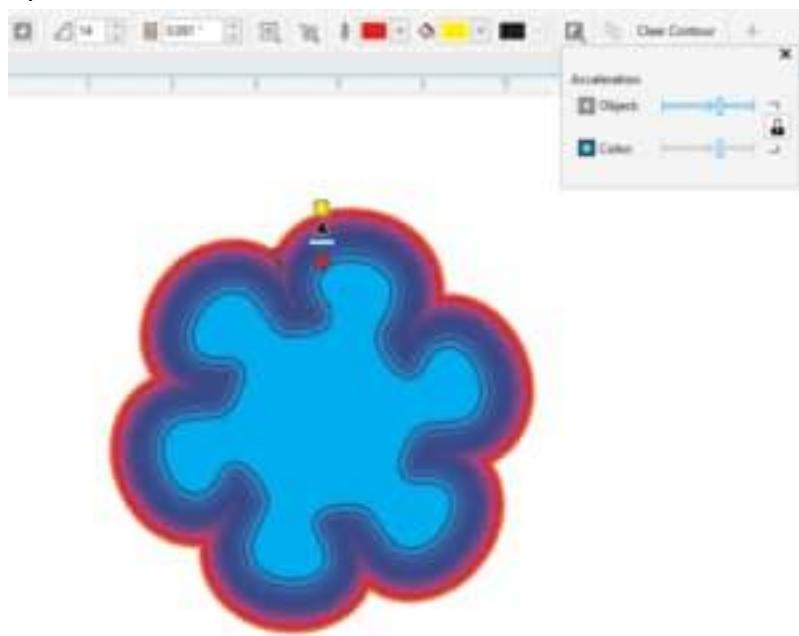


Figure. 7.11.8 Interactive Contour properties

When the contour is **To Center**, the contour steps fill the inside of the object, based on the contour offset distance.

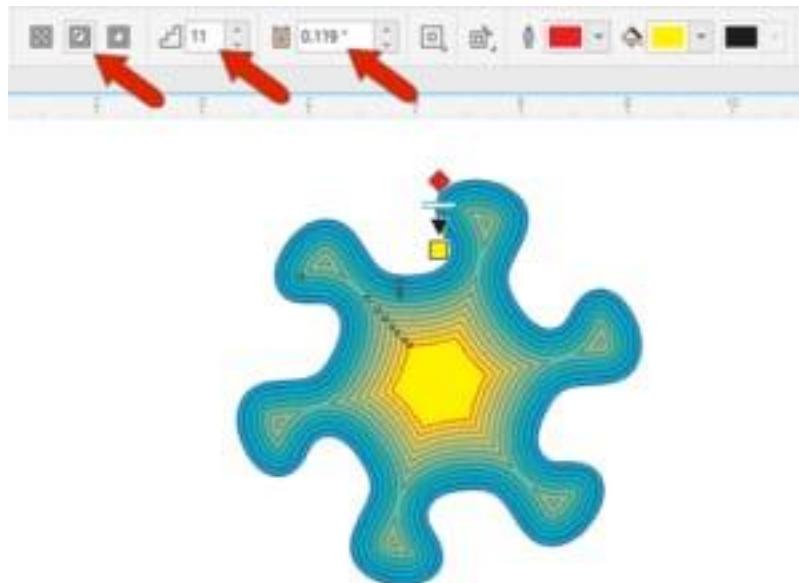


Figure. 7.11.9 Interactive Contour properties

You can adjust the offset distance and the number of steps, and clicking **To Center** again will fill the shape based on the current offset distance.

Contours for Open Curves

Contours can also be applied to open curves, or shapes with no fill. The gradient is applied from the original outline color to the contour outline color.

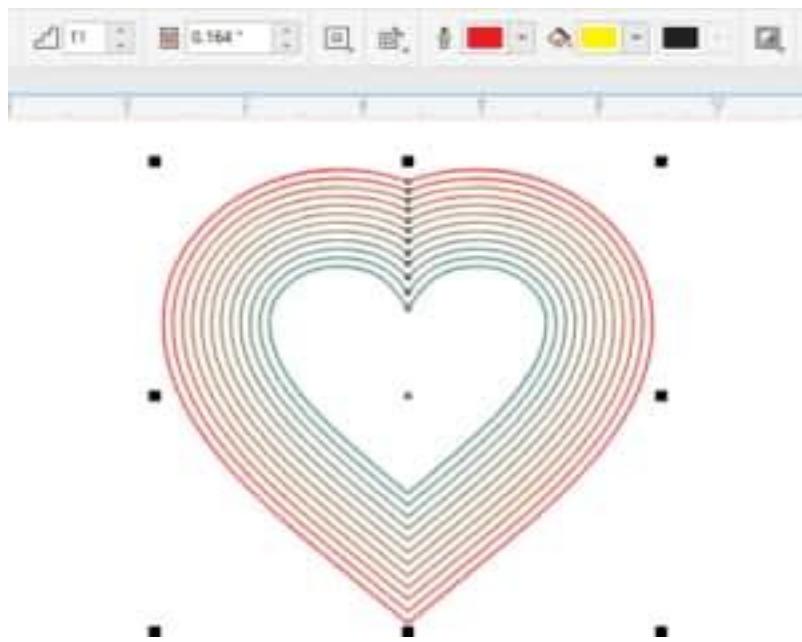


Figure. 7.11.10 Contours for Open Curves

You can fill objects by clicking a color swatch.



Figure. 7.11.11 Contours for Open Curves

Contours for Text

Contours can be applied to text as well. This text has a fountain fill, which means the contours do as well. In this case you can specify contour fill colors to correspond with the start and end colors of the fountain fill.

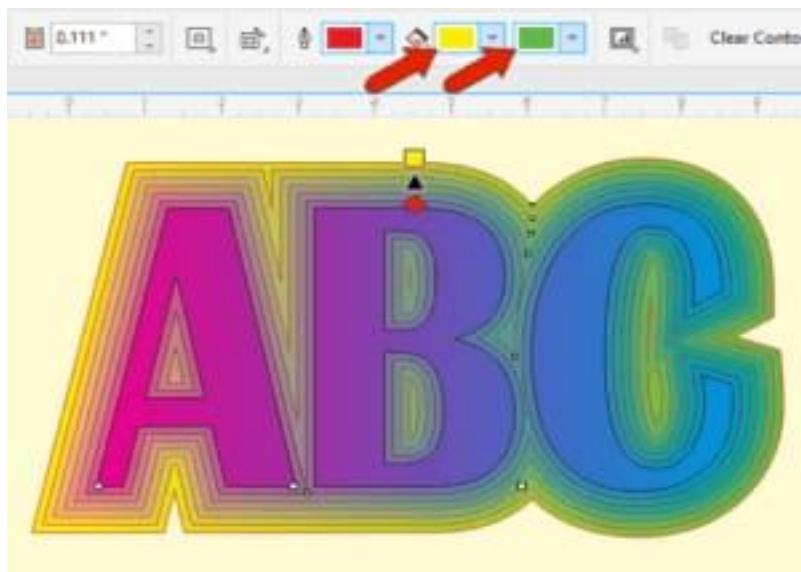


Figure. 7.11.12 Contours for Text

By default, contours have sharp corners to match the sharp corners of the text, but you can click the **Contour corners** icon and switch to **Round** or **Bevel** corners.

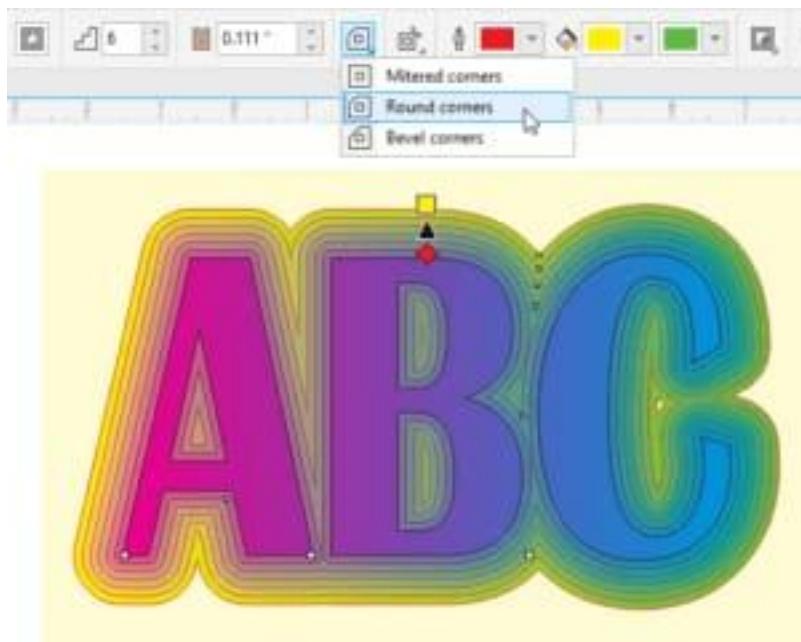


Figure. 7.11.13 Contours for Text

Breaking Contours Apart

Finally, contours are connected to the objects on which they're based, so if you need the contours as a separate object, you need to separate them from the original object. This is done by right-clicking on the contours and choosing **Break Contour Apart**.

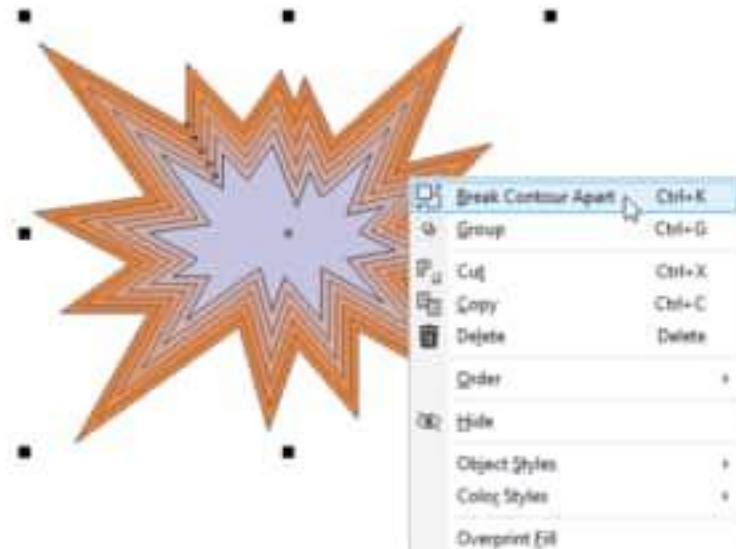


Figure. 7.11.14 Breaking Contours Apart

Now with the **Pick** tool you can select just the contours and move them aside.

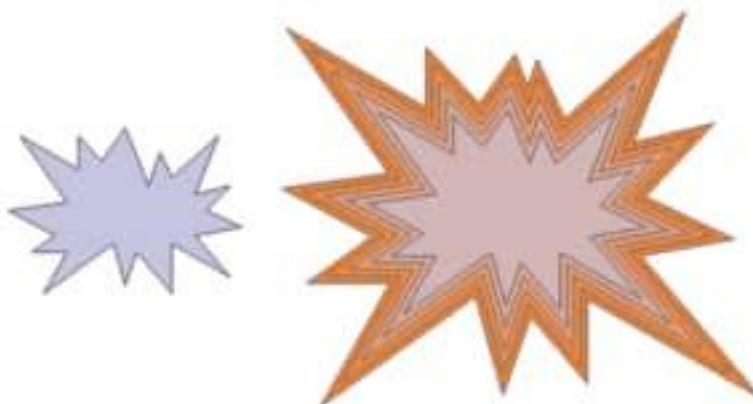


Figure. 7.11.15 Breaking Contours Apart

The contours themselves are now a group, so if you need to separate each contour shape, you could right-click and ungroup.

7.12. Interactive Distort

Interactive Distortion Tool

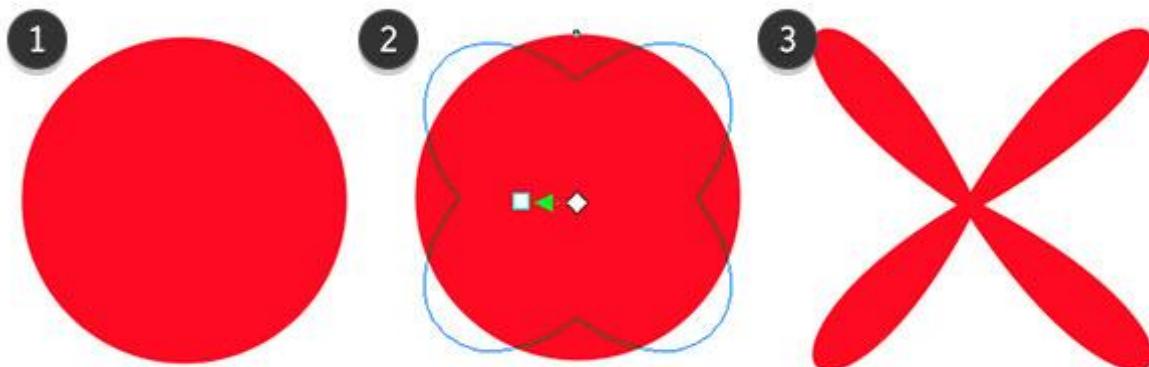
You can use the Interactive Distortion Tool to quickly add amazing effects to objects. Just like the other interactive tools, property bar options can be used to modify the distortion effects. There are three types of distortions: Push/Pull, Zipper, and Twister. Distortions can be applied to any object created in CorelDraw and to artistic text.

7.12.1. Distorting Shapes into Flowers

Step 1

Open a **New Document** and let's begin with the first flower-making technique.

1. Draw a circle with the **Ellipse Tool (F7)**.
2. Using the **Distort Tool**, select **Push and Pull Distortion** in the **Property Bar** and drag the tool to the left from the center of the circle (this is the **Push** distortion).
3. Continue dragging the **Push** distortion until you have four flower petals whose shape you like.



7.12.1. Distorting Shapes into Flowers

Step 2

Let's build that "pushed" shape into a simple flower!

1. **Duplicate (Control-D)** the flower petal shape and **Rotate it 90°**.
2. **Align** the two shapes by their centers in the **Align and Distribute docker**.
3. Draw a circle with the **Ellipse Tool** and place it in the center of your flower.

Set your shapes' fill and outline colors in the **Object Properties** docker and **Group (Control-G)** together your flower components.

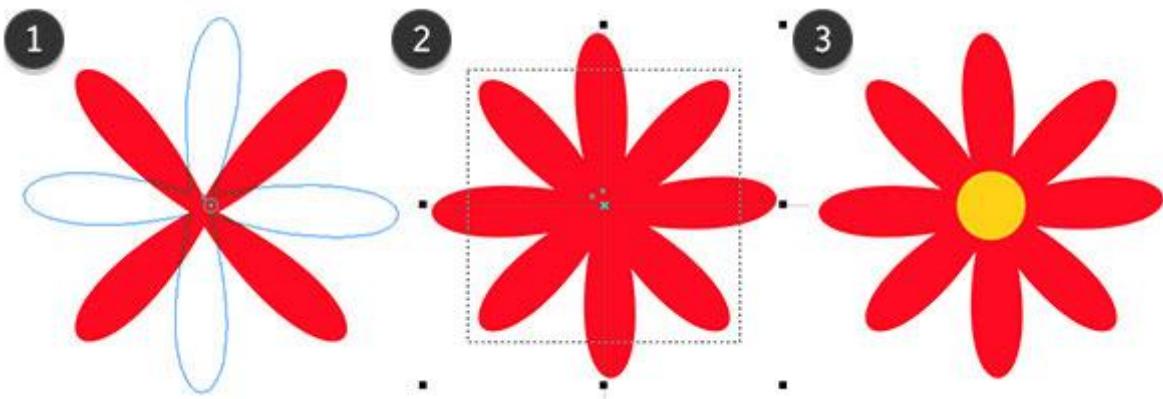


Figure. 7.12.2. "pushed" shape into a simple flower

Step 3

An alternate method of creating simple daisies is using a polygon to start.

1. Draw a ten-sided figure, or a decagon, with the **Polygon Tool (Y)**. Set the number of sides in the **Property Bar**.
2. Once again, use the **Distort Tool to Push** the decagon into a petaled flower shape.
3. Draw a circle and place it in the center of the design.

You'll notice that before and after distortion, you can change the number of sides so long as you haven't converted your object to curves.

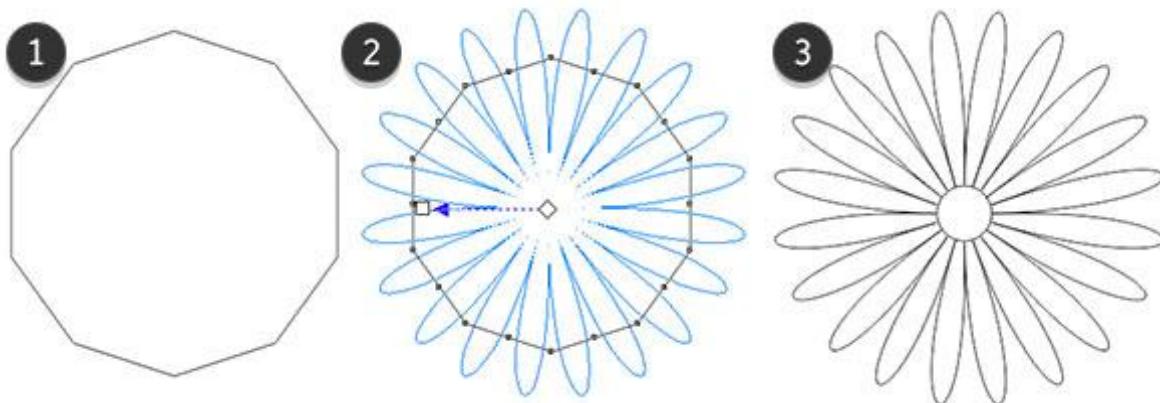


Figure. 7.12.3. simple daisies is using a polygon to start

Step 4

Another style of flower or flower-like shape starts with a circle as a base.

1. Draw a circle with the **Ellipse Tool**. Using the **Distort Tool**, select **Zipper Distortion** from the **Property Bar**. You can either drag the tool out from the center of the circle, or enter **81** for **Zipper Amplitude** and **5** for **Zipper Frequency**.
2. Switch to **Push and Pull Distortion** and either **Push** (to the left) your shape into a flower-like shape, or enter **-60** into **Push and Pull Amplitude**.

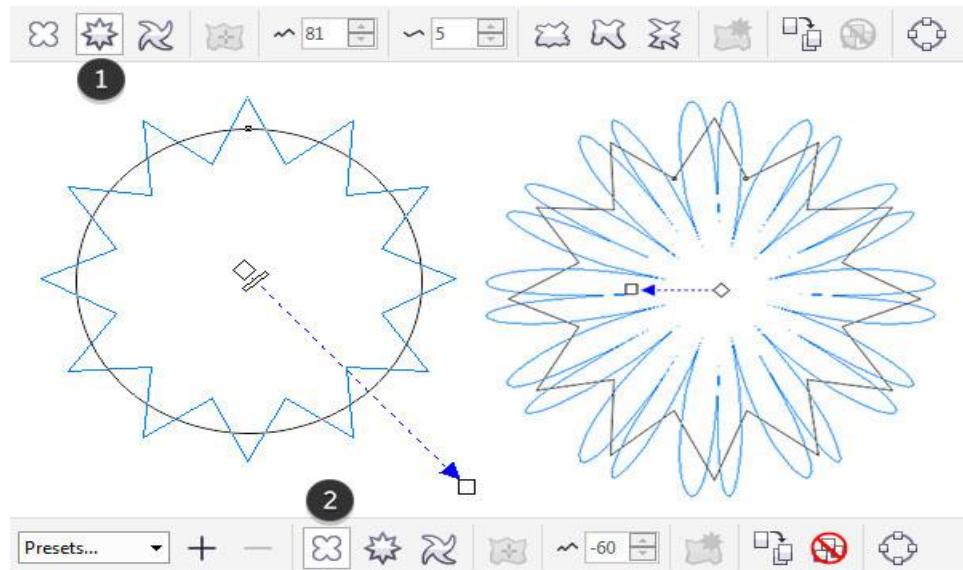
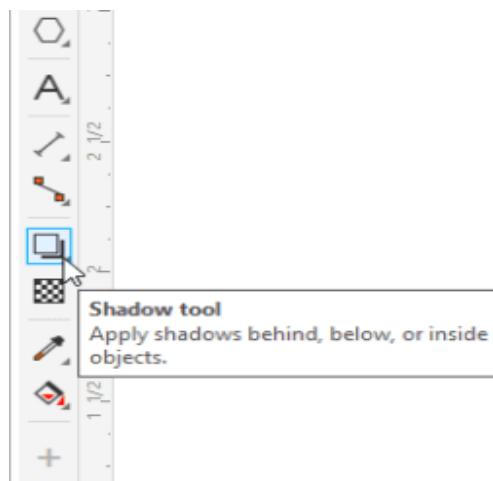


Figure. 7.12.4. flower-like shape starts with a circle as a base

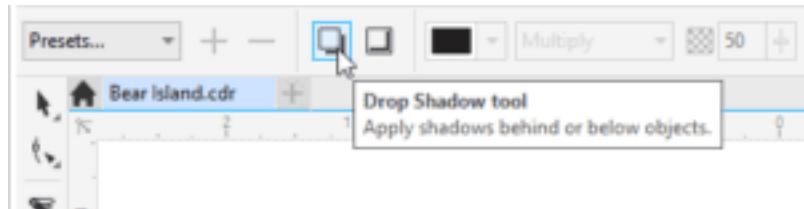
7.13. Interactive Drop Shadow

There are two types of shadows that you can create with the **Shadow tool**: drop shadows and inner shadows. The **Shadow tool** can be found on the left toolbar.



7.13. Interactive Drop shadow tool

Once you activate it, the tool's options will be available on the **Property Bar**.



7.13.1 Drop shadow tool properties

7.13.2 How to Apply a Drop Shadow

Select the **Drop Shadow** tool on the property bar. Click in the center of the object you want to apply the shadow to (in this case, the blue circle) and drag outside the object in the direction that you want the shadow to fall. This shadow effect makes the entire circle appear to be floating above the white background.



Figure. 7.13.2 drop shadow

If you want to apply a uniform drop shadow instead of an angled drop shadow, keep the end arrow of the **Drop Shadow** tool within the object (circle).



Figure. 7.13.3 drop shadow

To remove the drop shadow, click on the **Clear Shadow** button on the property bar.



Figure. 7.13.4

How to Apply an Inner Shadow

Introduced in CorelDRAW 2020, the **Shadow** tool now includes an inner shadow option. Click on the **Inner Shadow** button on the property bar.

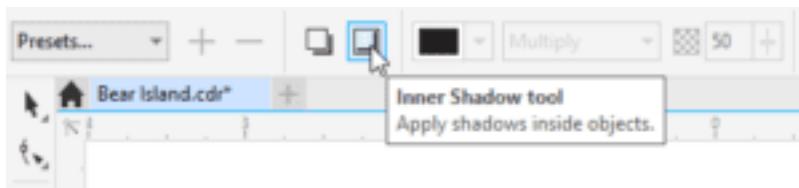


Figure. 7.13.5 Inner Shadow tool

Drag from the center outward, and the shadow now is all inside the circle. The depth effect appears along the edges, giving the circle itself a 3D appearance.



Figure. 7.13.6 Inner Shadow

You can drag the bar along the arrow to change the shadow opacity.



Figure. 7.13.7 Inner Shadow opacity

Editing Shadows

The property bar offers several settings that can be adjusted to edit a drop or inner shadow:

- **Shadow color**— to choose the shadow color.
- **Merge mode**— to choose how the color of the shadow blends with the color of the underlying object. The default merge mode **Multiply** produces natural-looking shadows.
- **Shadow opacity**— to adjust the transparency of the shadow.
- **Shadow feathering**— to sharpen or soften the edges of the shadow.
- **Feathering direction**— to soften the shadow's edges towards the inside of the shadow, the outside of the shadow, or in both directions.
- **Feather edge**— to choose a feathering type.
- **Inner shadow width**— to set the width of an inner shadow that is not offset.
- **Shadow offset**— to change the distance between shadow and the object edge.

You can also use the **Shadow** tool controls to adjust the shadow. For example, dragging the arrow outside the circle produces a side-lit effect, and changing the arrow direction changes the **Shadow Offset** values.

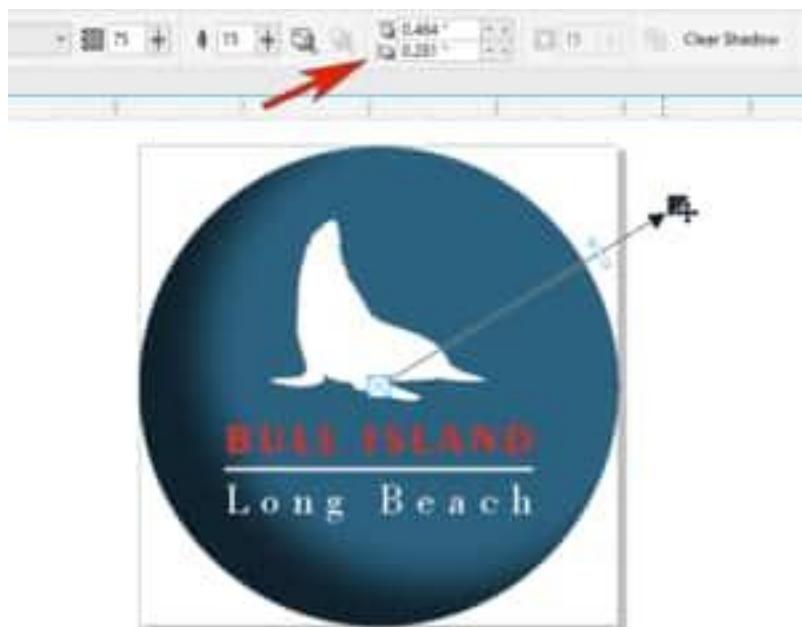


Figure 7.13.8 Editing shadow

7.14. Interactive Envelope

Envelopes are used to re-shape objects such as a curve, group of curves, artistic or paragraph text, or bitmap images, either by dragging the nodes that surround the object, or by fitting the object to an existing curve. Because enveloped are applied non-destructively, they can be edited or removed, and the original object is preserved.

The **Envelope** tool is part of the **Effects** tool group.

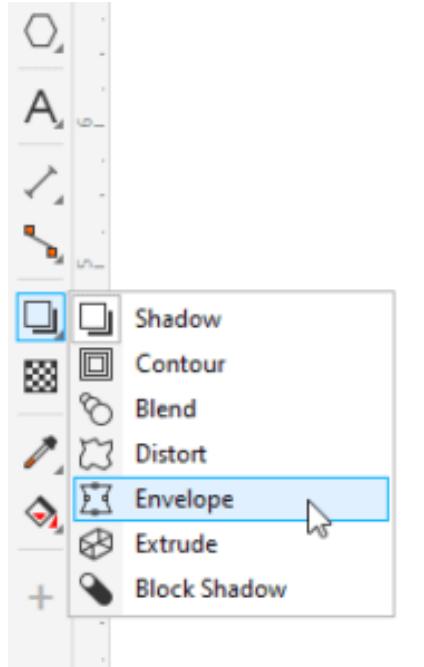


Figure.7.14 Envelope tool

Envelope Tool Modes

This example consists of a simple artistic text object. With the **Envelope** tool active, and the text selected, the property bar has four envelope modes.

7.14.1. Straight Line Mode

We'll start with **Straight line mode**.

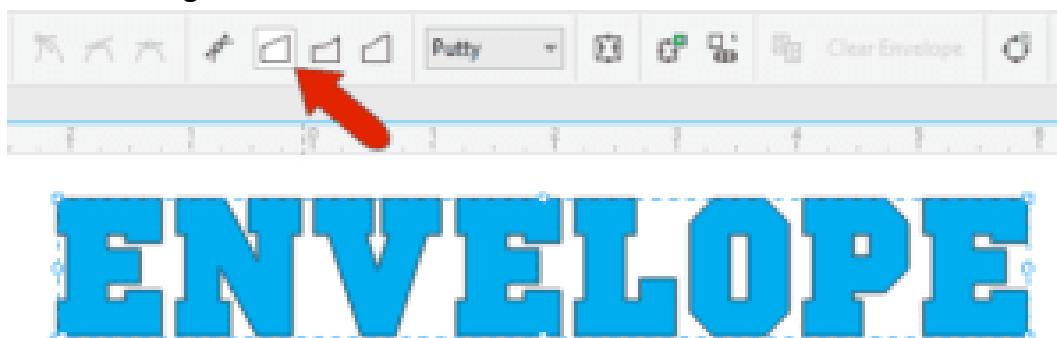


Figure. 7.14.1. Straight Line Mode

In this mode, corner nodes can be dragged both horizontally and vertically, and middle nodes can be dragged either horizontally or vertically.

For all envelope modes, holding the **Shift** key while dragging moves opposite nodes in opposite directions.

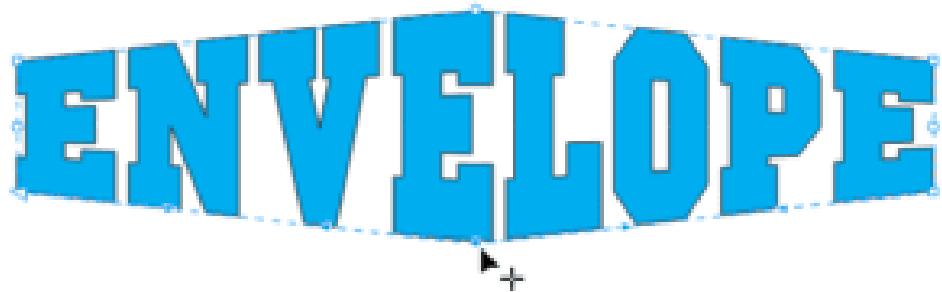


Figure. 7.14.1.1 nodes in opposite directions

Holding the **Ctrl** key while dragging moves opposite nodes in the same direction.



Figure. 7.14.1.2 opposite nodes in same direction

7.14.2. Single arc mode

Single arc mode works in a similar way. Dragging middle nodes produces arcs in one direction, and corner nodes produce arcs in either direction.

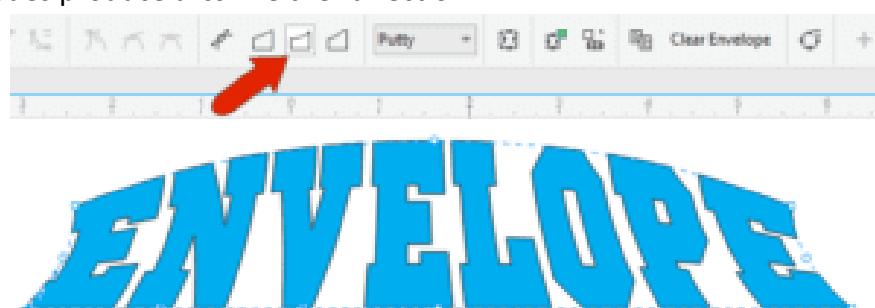


Figure. 7.14.2. Single arc mode

7.14.3. Double arc Mode

Dragging nodes in **Double arc** mode produces S-curves, in which the tangency at either end stays the same.

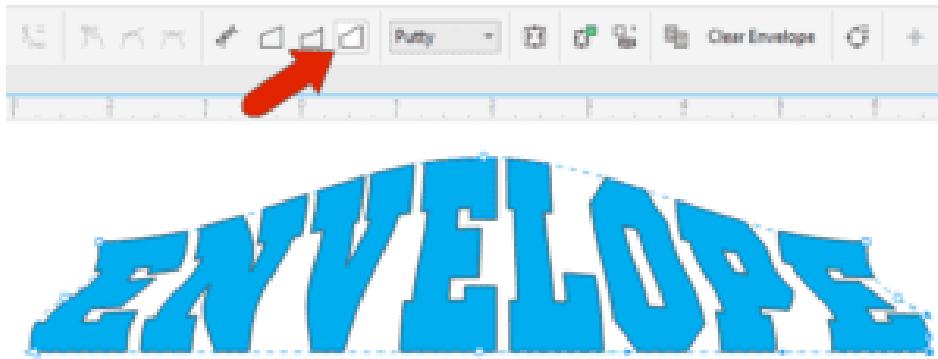


Figure. 7.14.3. Double arc Mode

7.14.4. Unconstrained mode

In all three of these modes, you can't adjust curve tangency at any node. But you can do this in **Unconstrained** mode, which creates a freeform envelope. Unconstrained nodes can be used to reshape the envelope in ways that can't be done in the other modes.

For example, you can:

- ⇒ drag nodes anywhere
- ⇒ drag arrows to adjust tangency
- ⇒ select a corner node and change it to a smooth node
- ⇒ select a smooth node and change it to a cusp node that can have different tangency on either side
- ⇒ double-click to add nodes
- ⇒ double-click a node to remove it
- ⇒ drag to marquee-select a group of nodes to change or move them all at once

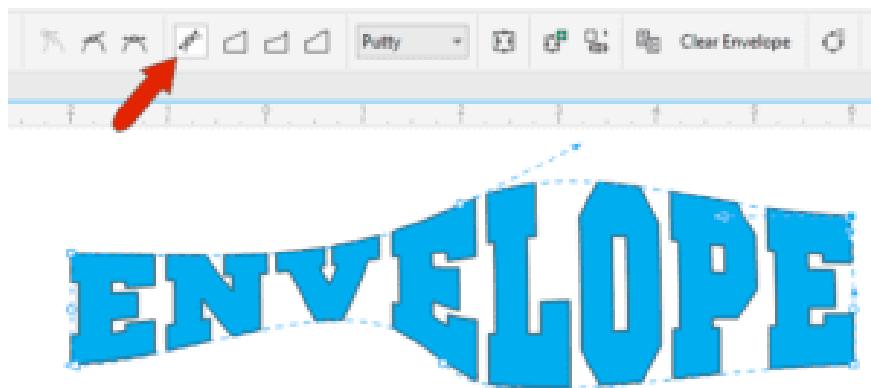


Figure. 7.14.4. Unconstrained mode

Note: To start over, or to remove the envelope, click the **Clear Envelope** button on the property bar.

Using the Envelope Tool to Create Perspective Objects

A simple application for the **Envelope** tool is to place an object in perspective. In this example, the banner shape and artistic text are a grouped object.



Figure. 7.14.5. Perspective Objects

With the group selected with the **Pick** tool, and the **Envelope** tool active, you can use **Straight line** mode and drag corner nodes to match the side of the box.

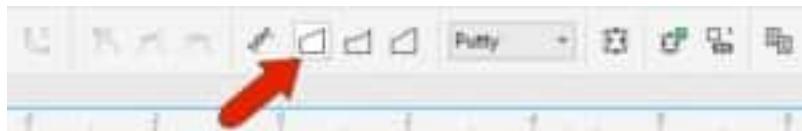


Figure. 7.14.6. Perspective Objects

7.15. Interactive Extrude

Extrude Tool Basics

It is used to create rendered designs with depth. This tool's features enable designers to rotate objects and apply depth to a single object. A unique feature of this tool is to extend objects and create 3-dimensional effects.

The Extrude tool is part of the Effects tool group.

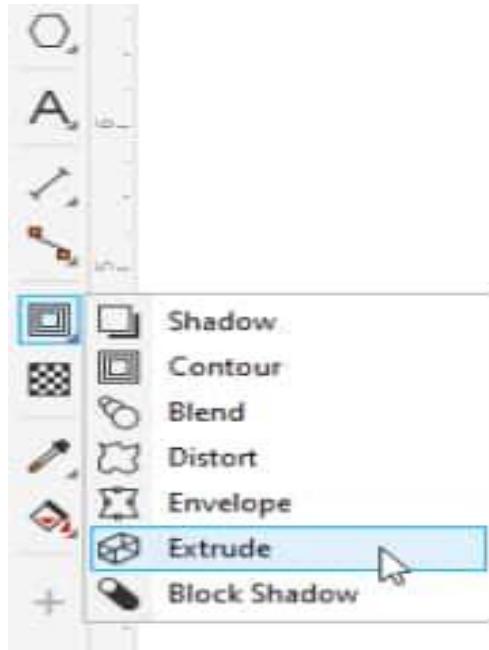


Figure. 7.15. Interactive Extrude Tool

Activate the **Extrude** tool and click the object to extrude. To create the extrusion, click anywhere on the object again, and drag in the direction of the extrusion.

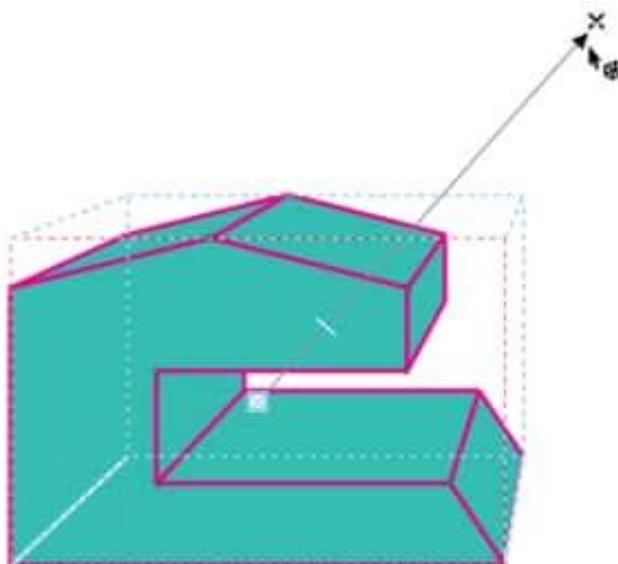


Figure. 7.15.1 Interactive Extrude

You can also pre-select the object in advance with the **Pick** tool, activate the **Extrude** tool, and click and drag to create the extrusion.

You can adjust the location of the vanishing point by dragging the **perspective handle**, which is the black X, or by entering values in the **Vanishing point coordinate** fields on the property bar.

The extrusion depth can be changed by dragging the slider, or by entering a value in the **Depth** field on the property bar.

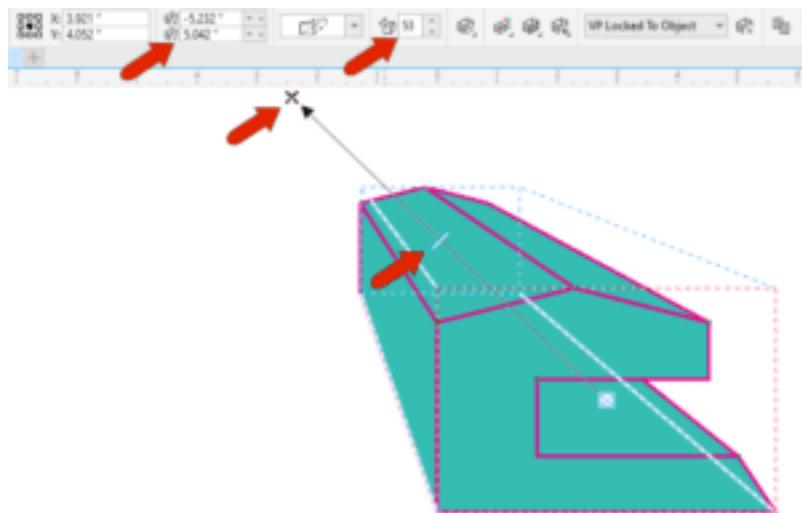


Figure. 7.15.2 Interactive Extrude

To start over, or remove the extrusion, click the **Clear Extrude** button on the property bar.

By default, the extrusion fills and outline colors, as well as the outline width, match those of the object being extruded. The **Extrusion color** icon on the property bar has options to **Use Object Fill** or **Use Solid Color** for the extrusion, or **Use Color Shading** in which you can set a start and end color.

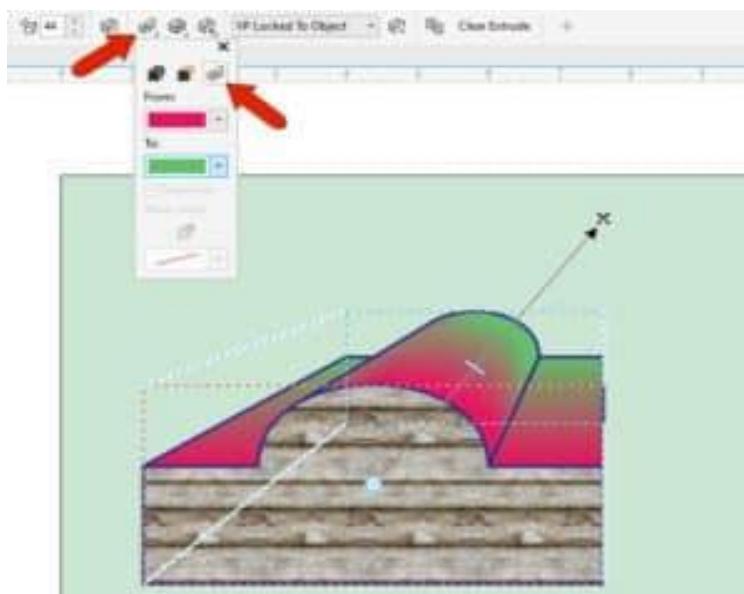


Figure. 7.15.3 Interactive Extrude

When you select the **Use Object Fill** option, you can also un-drape the fill, which aligns the fill in different spots in each section.

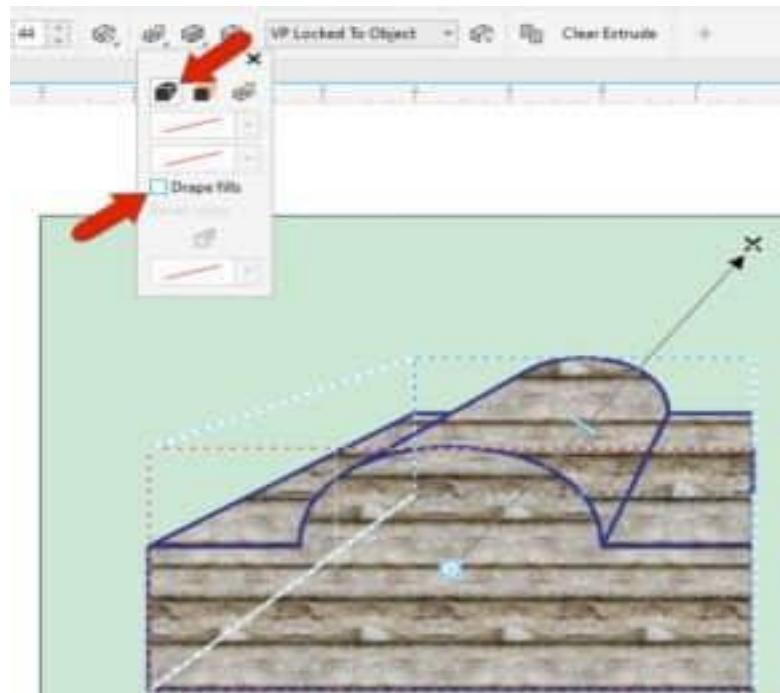


Figure. 7.15.4 Interactive Extrude

Changing the original object will also change the extrusion. For example, you can use the **Shape** tool to adjust or add nodes, and the extrusion updates as you make drag the nodes to reshape the object.

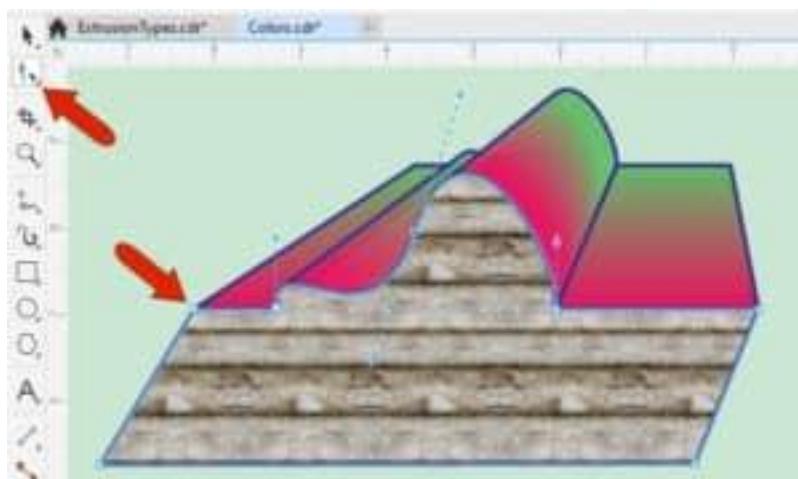


Figure. 7.15.5 Interactive Extrude

Another way to create a 3D effect is to click the **Extrusion Bevels** icon on the property bar and check **Use bevel**. Adjusting the bevel height and angle changes the 3D effect to the front of the object.

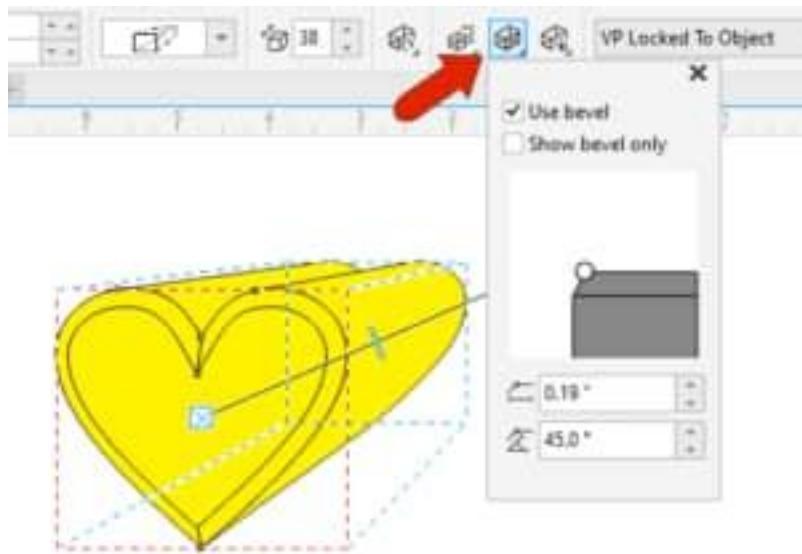


Figure. 7.15.6 Extrusion Bevels

You can also turn off the extrusion and leave just the bevel. For any of the extrusion color options, you can set the color of just the bevel.

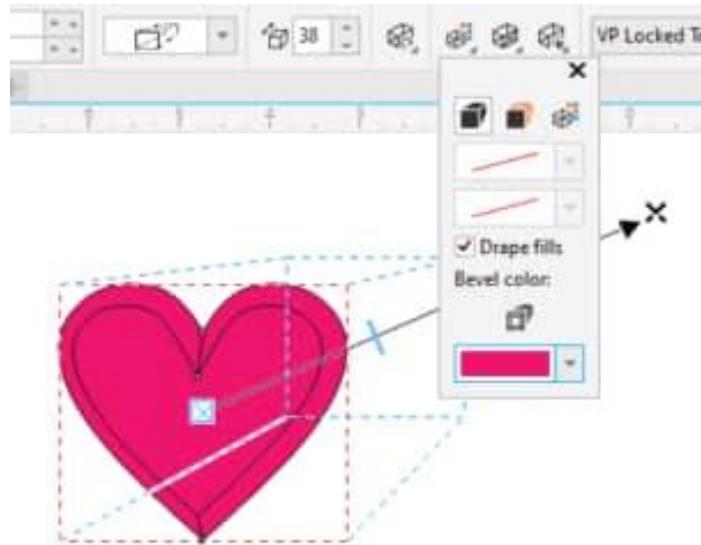


Figure. 7.15.7 Bevels

Extrusion Types

There are six types of extrusions, which can be seen in the **Extrusion Type** dropdown window on the property bar. The default type has the original object in front and the extrusion going toward the back and growing smaller toward the vanishing point. The other two types with the object in front have the extrusion growing larger, or staying the same size.

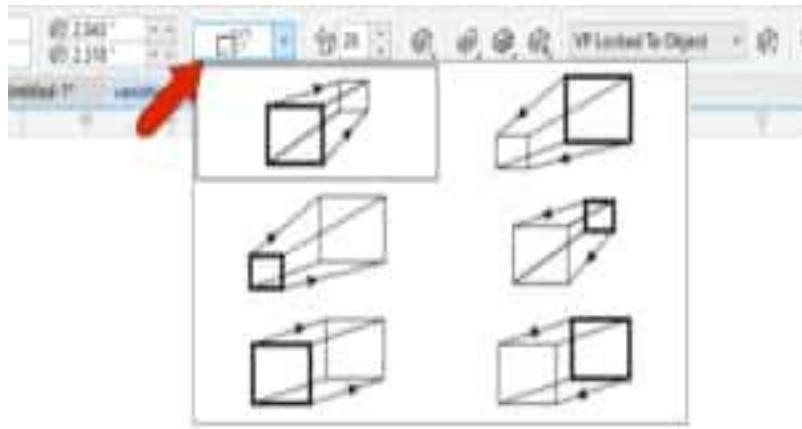


Figure. 7.15.8 Extrusion Types

There are also three types with the object in the back, so that only the extrusion itself is visible. With these types, you can choose to have the extrusion grow smaller, grow larger, or

Adding Extrusions to Multiple Objects

Only one object can be extruded at a time, but an entire group can also be extruded. In this example, if we want to extrude this entire house, first we need to select all its shapes with the **Pick** tool and then click the **Group Objects** icon on the property bar.

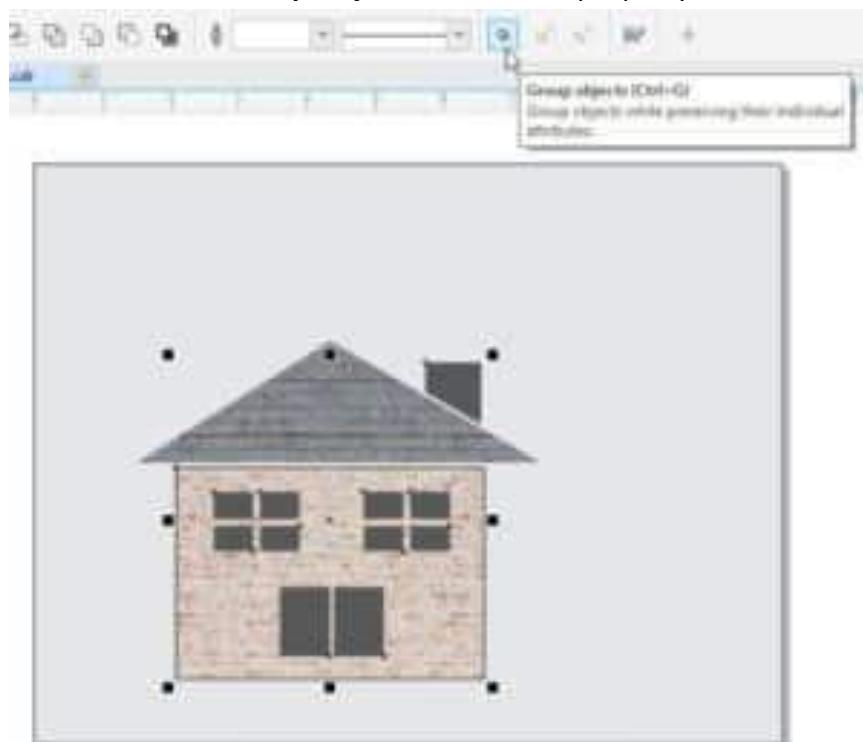


Figure. 7.15.9 Extrusion to multiple objects

Now we can extrude the whole house.

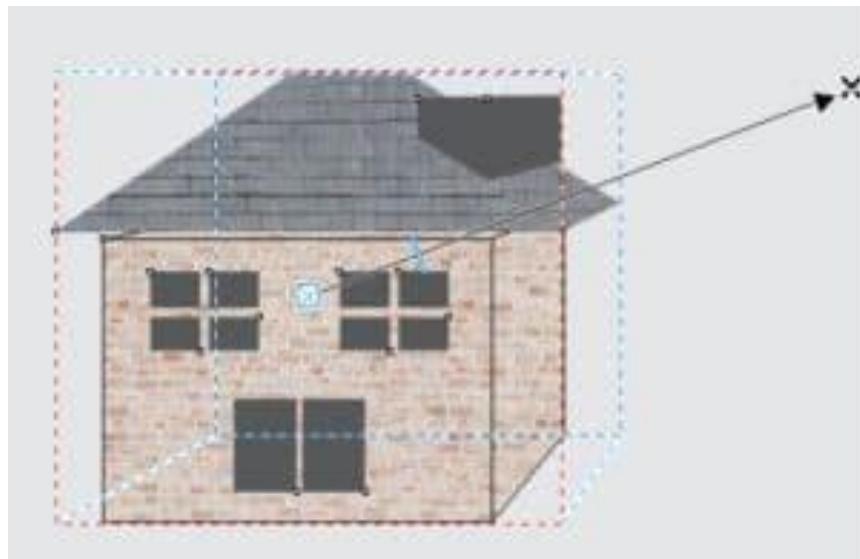


Figure. 7.15.10 Extrusion to multiple objects

7.16. Interactive Transparency

The **Transparency** tool can be found in the CorelDRAW **Toolbox** on the left-hand side of the interface, above the **Eyedropper** tool. It looks like a black and white checkerboard. Once the tool is activated you will notice that the **Property** bar along the top changes to show the transparency types. When a transparency type is selected, the **Property** bar will display additional options.

There are 5 types of transparencies:

- Uniform
- Fountain
- Vector pattern
- Bitmap pattern
- Two-color pattern/texture

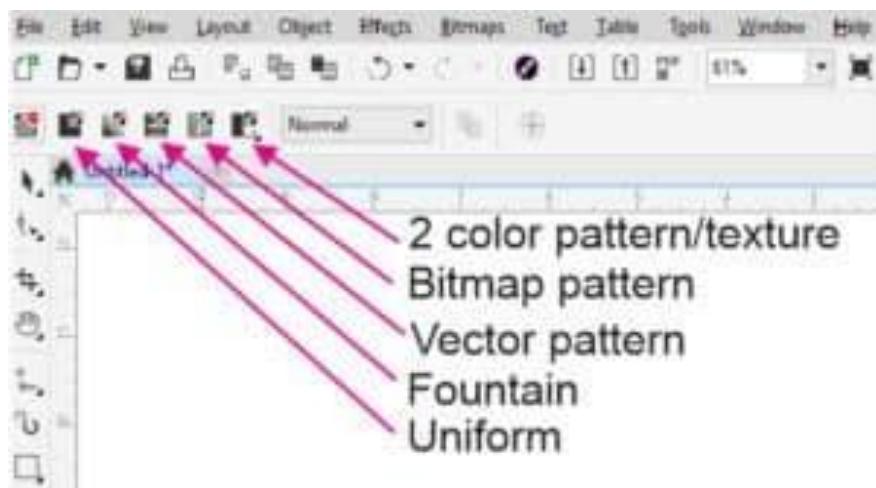


Figure. 7.16. Interactive Transparency

For each transparency type you can apply a **Merge Mode**, which will specify how the color of a transparency is combined with the color of the object behind it. Each transparency type also has a **Transparency Picker**, which allows you to select from different styles of transparency. You can apply a transparency to the fill of an object, the outline of an object or both. You can also adjust the opacity of the transparency and edit more details about the transparency.

7.16.1. How to Apply a Uniform Transparency

We will understand this with the help of following excises

Exercise 1: T-shirt Mockup

In our first exercise we are going to use a uniform transparency to make a t-shirt mockup look more realistic. Often a white or solid color design placed on a t-shirt photo will look like a sticker just stuck on there. We can apply a transparency effect to give the appearance that the logo is actually printed on the garment. Select the **Transparency** tool and then select **Uniform Transparency** in the **Property** bar. Adjust the **Transparency** slider to **15**.



Figure. 7.16.1. Uniform Transparency

With a slight transparency, the logo is a little less opaque and looks like it is inked on the garment. If you want to see the difference, click on the **No Transparency** icon to remove the transparency, then click on the **Uniform Transparency** icon to re-apply the transparency. The effect is slight, but enough to make the t-shirt mockup look realistic.

Exercise 2: Adding a Color Cast to a Photo

Another use of uniform transparency is to add a color cast to a photo, in this case a photo being used for a musician's Facebook cover image. Select the image, hold down the **Shift** key on your keyboard and double-click the **Rectangle** tool. This will create a rectangle the same size as the photo. Next, choose a dark forest green on the **Color** palette and your rectangle will be filled with that color. Now let's add our transparency. With the green rectangle selected, activate the **Transparency** tool and then click the **Uniform Transparency** icon. You can adjust the opacity using the **Transparency** slider to get the look you want.



Figure. 7.16.1.1 Color Cast

7.16.2. How to Apply a Fountain Transparency

Exercise 1: Adding a Highlight to a Graphic

In this exercise, we are going to use a fountain transparency to add a highlight to two different graphic images: a button for a website and a light bulb. A fountain transparency is a gradient that fades from white (less transparent) to black (more transparent). On our web button we have the red button shape and a solid white shape on top. Applying a fountain transparency will make the white shape look like a highlight.

Select the white shape with the **Pick** tool then activate the **Transparency** tool. You can select the **Fountain Transparency** icon in the **Property** bar, or simply click and drag inside the white shape from the top down to the bottom. The fountain transparency is applied, softening the bottom edge so that it looks like it's fading into the button. You can tweak it by dragging on the black handle to adjust the fading edge to make it just right.

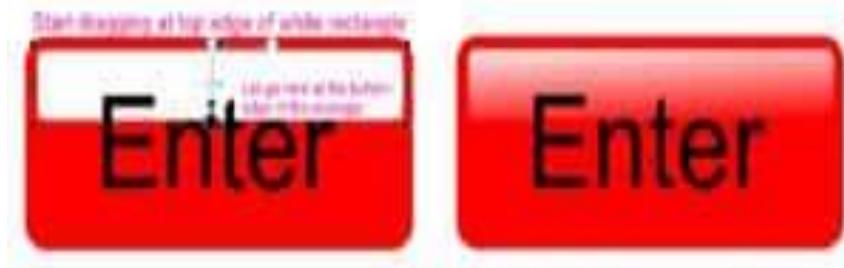


Figure. 7.16.2. Fountain Transparency

Let's try the same effect on our light bulb graphic. Apply the fountain transparency the same way by dragging from the center out towards the right side. The default for fountain transparency is **Linear**, which worked well on the web button but not for the light bulb. Choose the **Elliptical** fountain transparency instead.

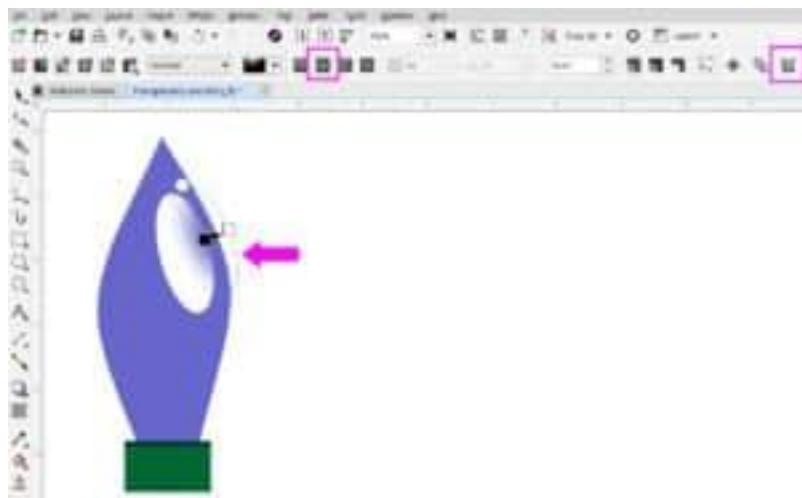


Figure. Figure. 7.16.2.1 Fountain Transparency

You can adjust the location of the fountain transparency by clicking on the blue dotted line and dragging it to move it.

We also need to reverse the transparency, so that it fades out towards the edge, not in towards the center. Click the **Edit Transparency** icon (at the far right of the **Property** bar), then click the **Reverse transparency** icon and click **OK**.

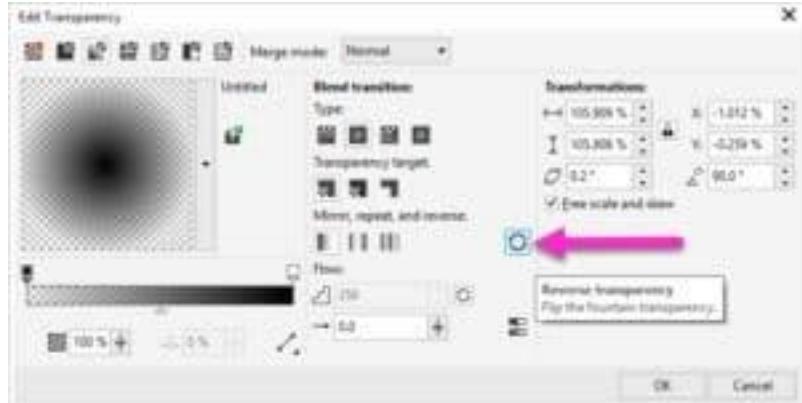


Figure. 7.16.2.2 Fountain Transparency

Then you can drag the black color handle to adjust the fade of the transparency so that the edges of the white highlight shape are soft.

Exercise 2: Using the Transparency Picker and Merge Modes

Let's return to the Facebook cover image and we will use some other transparency options to add effects. Activate the **Transparency** tool and apply a fountain transparency by dragging from the top to the bottom. Click on the **Transparency Picker** dropdown arrow to open the library of fountain fills.

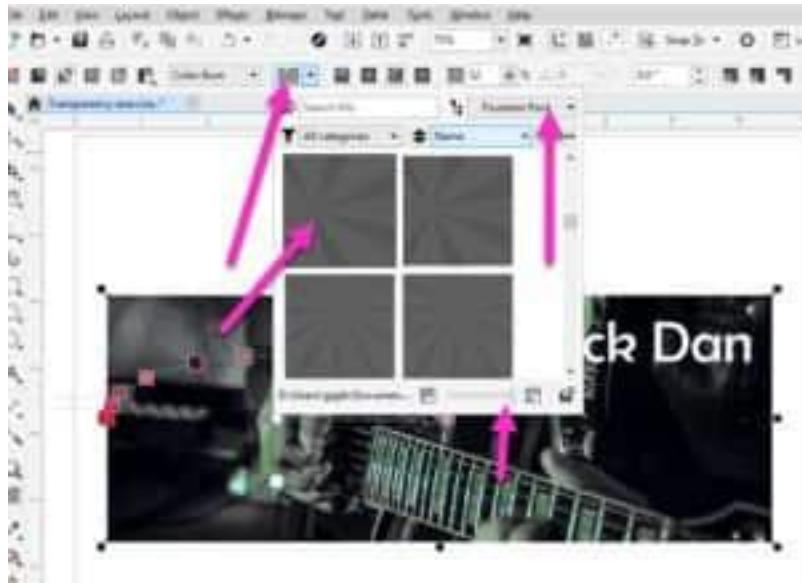


Figure. 7.16.2.3 Transparency Picker

Try applying different fills and using the handles and sliders to create different looks

- Click and drag the center white rectangle to reposition the fill
- Click and drag the white circle to adjust the length and angle of the fill
- Click on any of the colored squares and use the slider to adjust the opacity
- Activate the **Pick** tool and click on a color in the **Color** palette to change the color of the fill

Now let's look at **Merge Modes**. Click on the **Uniform** transparency icon in the **Property** bar. This will remove the fountain transparency and return to the solid, single color cast. We will use a merge mode to create a sepia effect. Click on the orange color in the **Color** palette. Select the **Color Burn** merge mode from the dropdown list. Adjust the **Transparency** slider to **52**.



Figure. 7.16.2.4 Merge Modes

7.16.3. How to Apply Pattern Transparencies

In this exercise you will learn how to create different effects on a thank-you card using **Vector**, **Bitmap**, **2-color** and **Texture** transparencies. First, select the **Vector Pattern** transparency icon in the **Property** bar. Click on the **Transparency Picker** dropdown and select the pattern you would like to use. You can adjust the scale and angle of the pattern by dragging the handles, and adjust the opacity for the **Foreground** and **Background** colors using the transparency sliders.

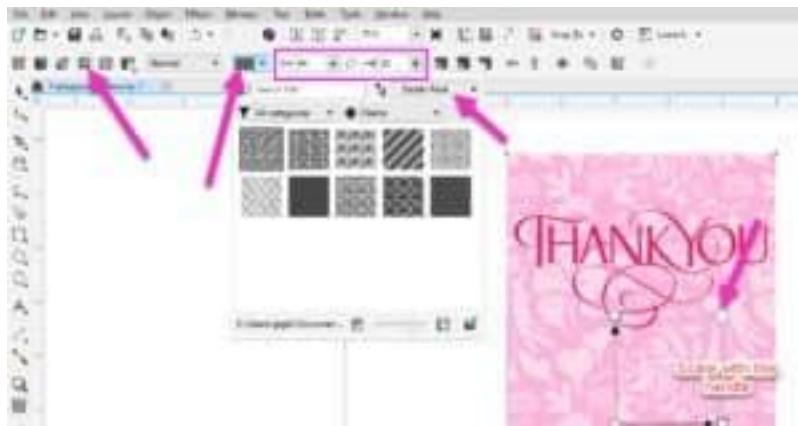


Figure. 7.16.3. Pattern Transparencies

Next, click on the **Bitmap Pattern** transparency icon in the **Property** bar. Check out the options in the **Transparency Picker** and select one you like. You can make adjustments to a bitmap pattern transparency the same as you did for the vector pattern transparency.

Now let's try a Two-color transparency. With the **Transparency** tool selected, click on the **Two-color Transparency** icon in the **Property** bar. Choose a pattern from the **Transparency Picker**, and experiment with different looks using the same adjustment tools as the **Bitmap** and **Vector** pattern transparencies.

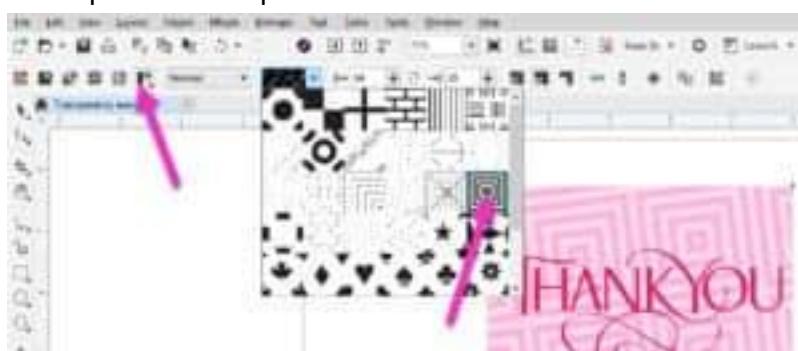


Figure. 7.16.3.1 Two-color Transparencies

Finally, let's try a **Texture** transparency. Click on the black arrow in the bottom right corner of the **Two-color Transparency** icon in the **Property** bar and select **Texture Transparency**.

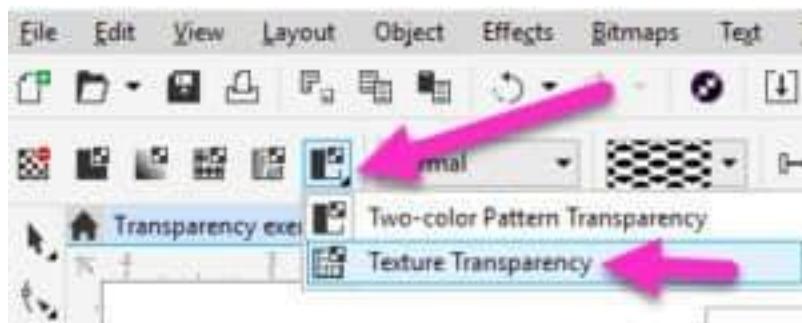


Figure. 7.16.3.2 Texture Transparency

Select any texture you like adjust the scale, angle, foreground and background levels as before.

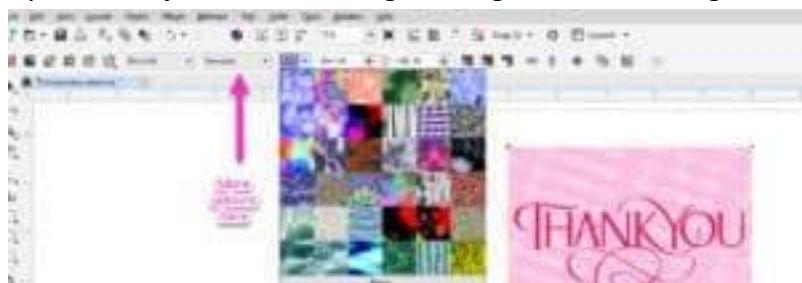


Figure. 7.16.3.3 Texture Transparency

Don't forget, you can change the color of your transparency fill or pattern by activating the **Pick** tool and selecting a different color in the **Color** palette.

Now that you are familiar with the **Transparency** tool in CorelDRAW, there is no limit to the different looks and effects you can create.



Figure. 7.16.3.4 Texture Transparency

7.17. Eyedropper Tool Flyout

CorelDRAW has a number of tools and features for choosing colors, including palettes, color viewers, and Eyedropper tools. In this exercise, we'll review the Eyedropper tools, which are the **Color Eyedropper** and the **Attributes Eyedropper**.

The Color Eyedropper

The **Color Eyedropper** is used to sample a color in a drawing, on a palette or on your desktop, to get an exact color match.

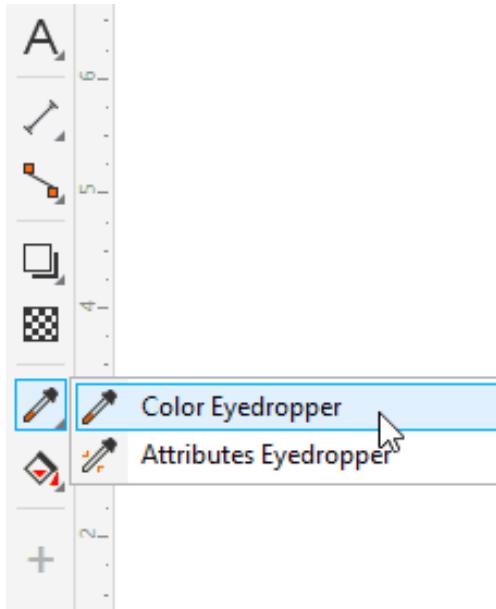


Figure. 7.17 color Eyedropper tool

In this example, we want to use colors from the roses image for the rectangle outlines, and to add a solid fill to the page.



Figure. 7.17.1 color Eyedropper tool

After activating the **Color Eyedropper** tool, as you move the cursor around you will see the color values listed, based on the object properties.



Figure. 7.17.2 color Eyedropper

By default, the cursor picks up the color of each individual pixel, but on the property bar there are icons you can choose to sample the average color from a 2×2 or 5×5 pixel area.

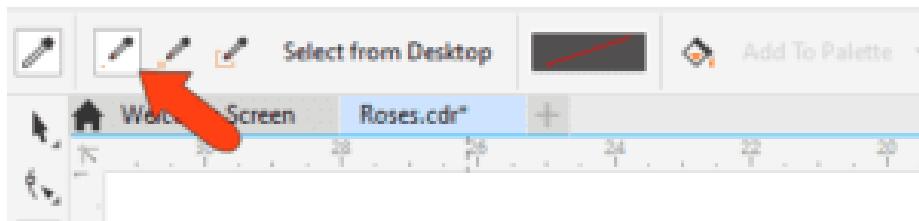


Figure. 7.17.3 color Eyedropper property

When you click on the image, the color appears in the **Selected Color** field on the property bar, and is ready to apply.

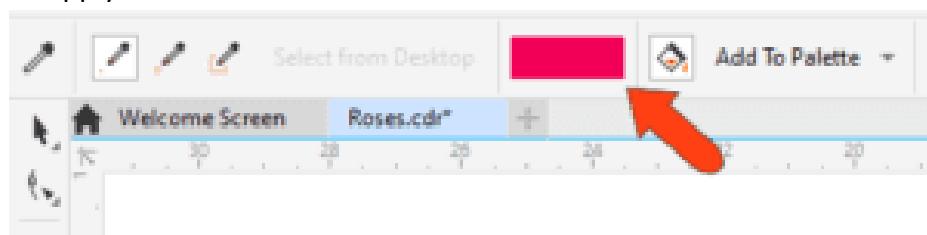


Figure. 7.17.4 color Eyedropper property

When applying a color, if your cursor is over an outline you'll see the outline symbol added to the cursor, and for a fill area you'll see a solid square added to the cursor. Clicking inside the page frame applies the solid fill.



Figure. 7.17.5 color Eyedropper property

To sample another color, press and hold the **Shift** key, and the cursor becomes an eyedropper once again. You could also go back to the eyedropper by clicking the **Select Color** icon on the property bar.

Select a new color, and rather than applying it straightaway, choose **Add to Palette**.

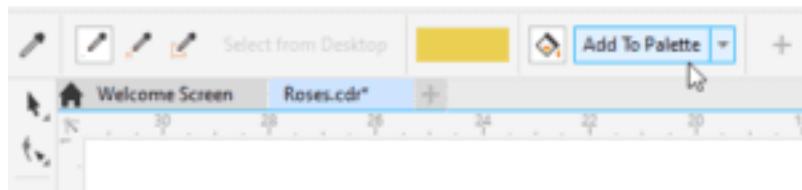


Figure. 7.17.6 color Eyedropper property

This adds the new color swatch to the **Document** palette, which is along the bottom of the interface.

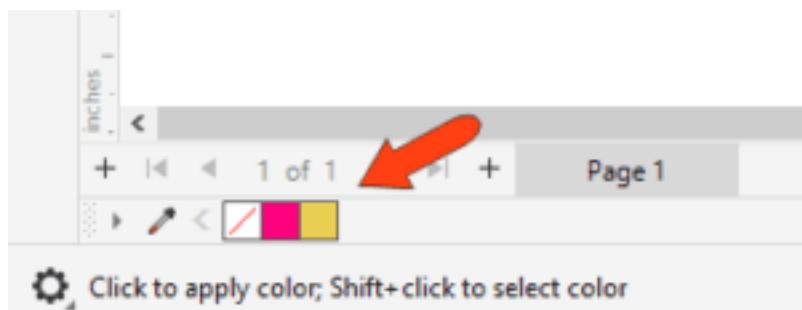


Figure. 7.17.7 color Eyedropper property

NOTE: If you have other palettes displayed, you could also choose one of those palettes from the **Add to Palette** dropdown.

On the PC, there is also an eyedropper in the **Document** palette which works like the **Color Eyedropper**, but can be used while any tool is active.

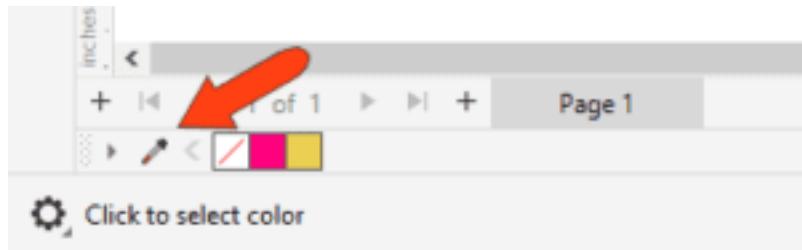


Figure. 7.17.8 color Eyedropper property

For example, if you switch to the **Pick** tool, you can click the eyedropper on the **Document** palette, click a color, and now that color also appears in the **Document** palette.

TIP: Colors in the **Document** palette, or in any palette along the right side, can be dragged directly onto an outline or into a fill while any tool is active.

Sampling Colors from the Desktop

The **Color Eyedropper** also has the **Select from Desktop** option to select a color from outside CorelDRAW, such as a web page or document.

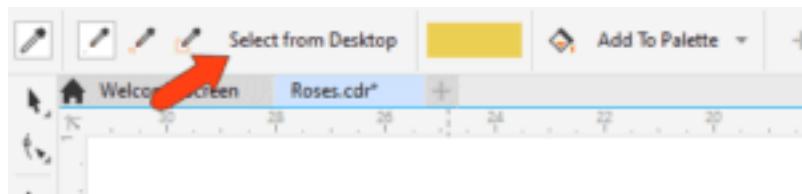


Figure. 7.17.9 Sampling Colors from the Desktop

For example, if you have an image in a Word document, and you arrange your desktop so that you can see both applications, you can click **Select from Desktop**, then sample the color from Word. Now this new color is ready to apply or add to the document palette.

For PC users, the document palette eyedropper can also sample colors from outside CorelDRAW.

Color Sampling from Other Tools

Color sampling can also be done via the **Color Window** viewer, which appears in several places throughout the CorelDRAW interface. For example, if you want to set text color to match another color, you can right-click on the text and choose **Properties**, which opens the **Properties** docker, or **Properties** inspector on the Mac.

On the **Character** tab of the **Properties** docker, click the **Fill Color** swatch to open the **Color Viewer**, and use the eyedropper here to set the text fill color. This eyedropper can also sample colors from the desktop.

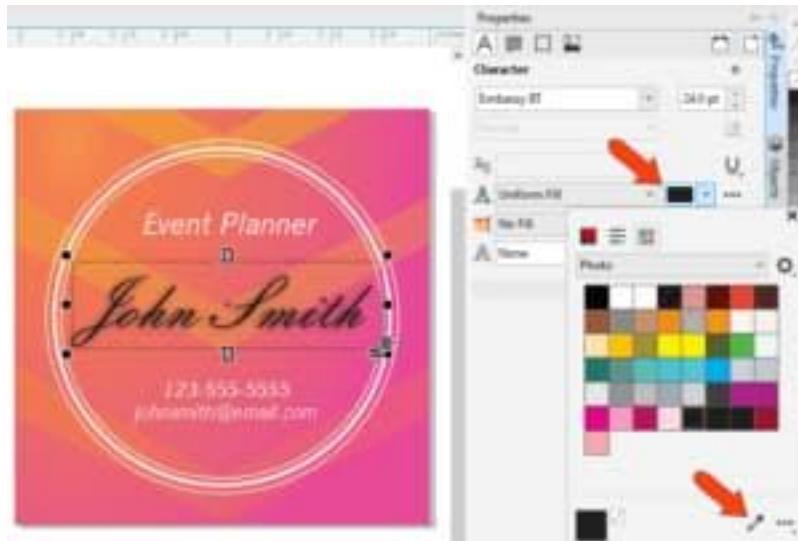


Figure. 7.17.10 Color Sampling from Other Tools

Figure.

7.18. Outline Tool Flyout

In CorelDRAW, the Outline flyout is a collection of tools that allows you to adjust the appearance of the outline or border of a selected object. The **Outline** tool in the toolbox opens a flyout that gives you quick access to items such as the **Outline pen** dialog box and **Outline color** dialog box. If the **Outline** tool is not in the toolbox, you can easily add it.

Here is an overview of the Outline flyout:

Outline Pen: This tool allows you to change the width and color of the outline of the selected object.

Outline Style: This tool lets you choose from a variety of outline styles, such as dashed, dotted, or double.

Outline Corner: This tool allows you to adjust the corner style of the object's outline, such as rounded or chamfered.

Outline Scale: This tool lets you adjust the thickness of the outline based on a percentage of the object's size.

Outline Offset: This tool allows you to move the outline of the object inward or outward, creating a border around the object.

Outline Feather: This tool lets you create a feathered or soft edge on the outline of the object.

Outline Outline Effect: This tool allows you to apply special effects to the outline, such as a drop shadow or 3D bevel.

By using these tools, you can create a wide range of effects for the outline of your objects, and customize the appearance to suit your design needs.

Outline Tool

In CorelDraw with outline tool, we can give or remove the outline of our object. We can also set the color and style and the width of outline.

Change Outline Width

We can change the width of our object outline by selecting the outline flyout from the tool box.

1. Choose Pick Tool from the Toolbox.
2. Select the object.
3. Choose the Outline Tool from the Toolbox and a fly-out will appear.
4. You can select the predefine width by selecting the outline sample or Click on outline Pen icon.
5. Now give the width and click on ok button.

Change Outline Color

1. Choose the Pick Tool.
2. Right click on any color in the color palette
3. Or

4. Choose the Outline Tool from the Toolbox and a fly-out will appear.
5. Click on outline color Icon.
6. An outline color dialog box appears. Select the color which you want to apply on the outline.

Create Calligraphy Effect

1. Choose Pick Tool and Select the object.
2. Choose Outline Tool to open the fly-out.
3. Click on Outline Pen icon.
4. A Dialog appears. Set Stretch and Angle in the Calligraphy section.
5. For example, 50% stretch and a 60-degree angle.

Set Outline Style

We can select the different outline styles for example doted outline.

For this purpose, select the pick tool and select the object.

1. Choose Outline Tool to open the fly-out.
2. Click on Outline Pen icon.
3. Open the style list and select any style which you want.

Outline Behind Fill

1. In CorelDraw outline by default appear front of the fill. We can also set the outline behind the fill.
2. For this purpose take the following steps:
3. Select the Outline Tool.
4. Select the Outline Pen window.
5. Give some outline and then Choose behind Fill near the bottom of the Outline Pen dialog box.

7.19. Fill Tool Flyout

In CorelDRAW, the Fill tool flyout is a set of options that appear when you click on the Fill tool icon in the toolbox. The Fill tool is used to add color or pattern to an object or shape in your design.

The Fill tool flyout contains various options to customize the fill of an object or shape. These options include:

1. **Solid fill:** Allows you to select a single color or shade to fill the object.

2. **Fountain fill:** Creates a gradient fill effect that blends two or more colors.
3. **Pattern fill:** Fills the object with a repeating pattern.
4. **Texture fill:** Fills the object with a texture or image.
5. **Postscript fill:** Allows you to create a custom fill by using PostScript code.
6. **No fill:** Removes any fill from the object, making it transparent.

The Fill tool flyout also includes options to adjust the opacity and transparency of the fill, as well as the ability to apply a contour or outline to the fill. By using the Fill tool and its flyout options, you can create a wide range of fills to enhance your designs.

How to Use the Fill Tools

Here we will learn about 3 of the Fill tools in CorelDRAW:

1. **Interactive Fill tool**
2. **Smart Fill tool.**
3. **Mesh Fill tool**

7.19.1. Interactive Fill Tool:

The **Interactive Fill tool** can be found on the Toolbox, by default in the last icon.

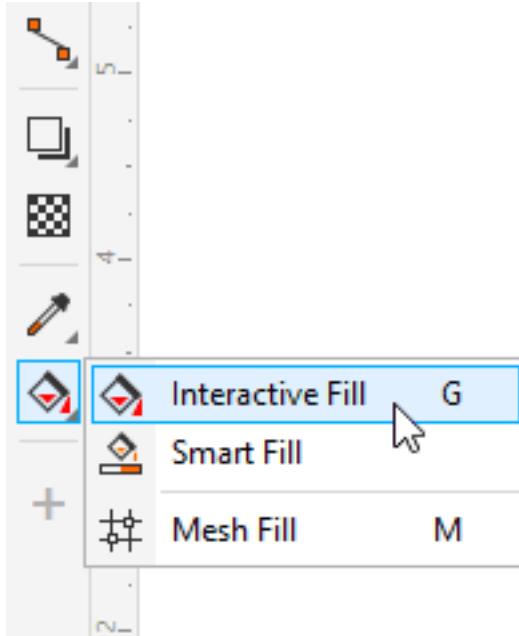


Figure. 7.19.1. Interactive Fill Tool

When using this tool, you can either select one or more objects to fill in advance, or activate the **Interactive Fill** tool and click the object you want to fill.

There are several types of fills, which can be selected from the property bar.

The **Uniform Fill** option applies the current fill color. You can click the **Fill Color** dropdown and choose a different color or use the eyedropper to sample a color anywhere in CorelDRAW or on your desktop.

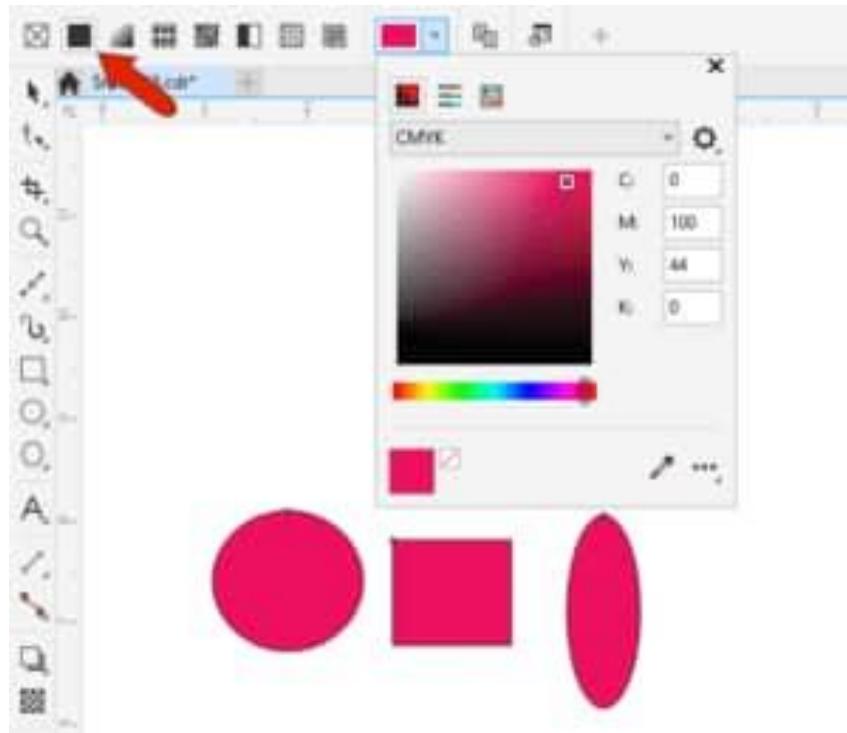


Figure. 7.19.1.1 uniform Fill Tool

The **Uniform Fill** option is equivalent to left-clicking a color swatch from any palette or dragging a swatch inside the object.

The equivalent to applying the “no color” fill is the **No Fill** option in the property bar.

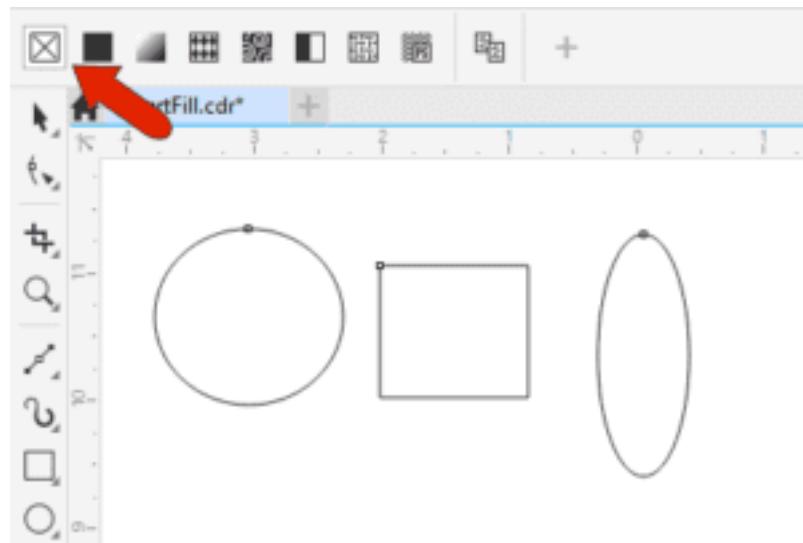


Figure. 7.19.1.2 No Fill

With the **Fountain Fill** option, you can apply a gradient, which proceeds by default from the last-used uniform fill color to white, along a horizontal line.

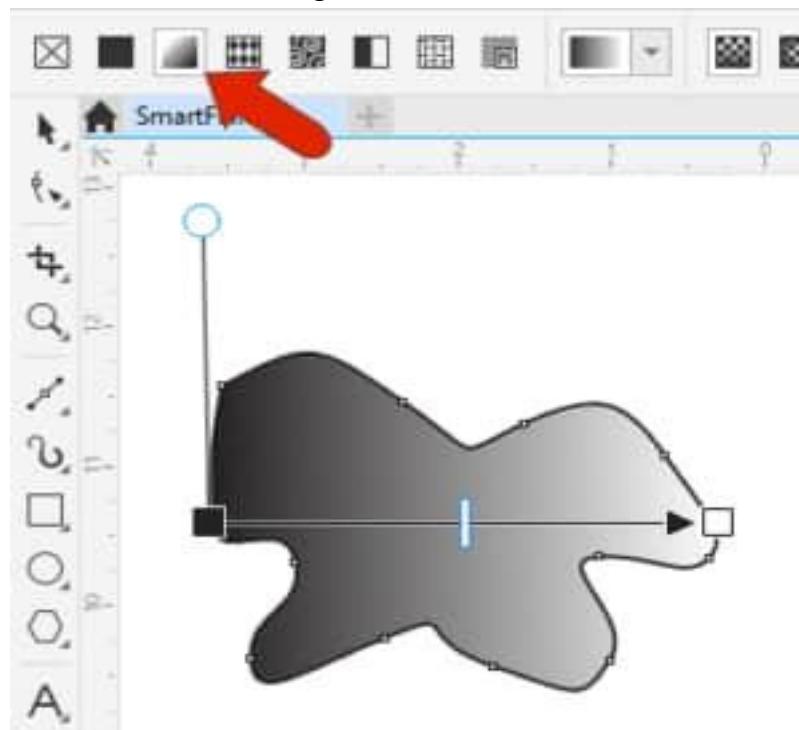


Figure. 7.19.1.3 Fountain Fill

You can also apply a fountain fill by clicking and dragging. This way you choose where to start the gradient from the original fill color, where the gradient should end at the second color, and the angle between the two colors.

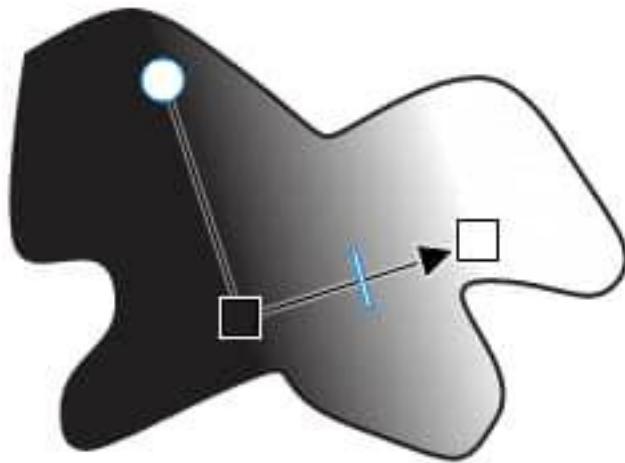


Figure. 7.19.1.4 Fountain Fill

Clicking a color swatch replaces the white color, or you can click either fountain fill control handle to change its color or reduce its transparency.

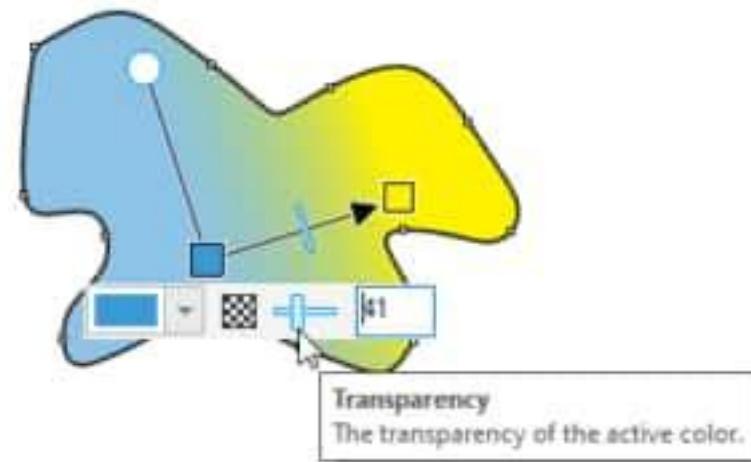


Figure. 7.19.1.5 Fountain Fill

You can also drag a swatch from a palette directly onto a control handle, drag either control handle to move the gradient start or end, drag the slider to adjust the rate of change, or drag the circular handle to change the gradient angle.

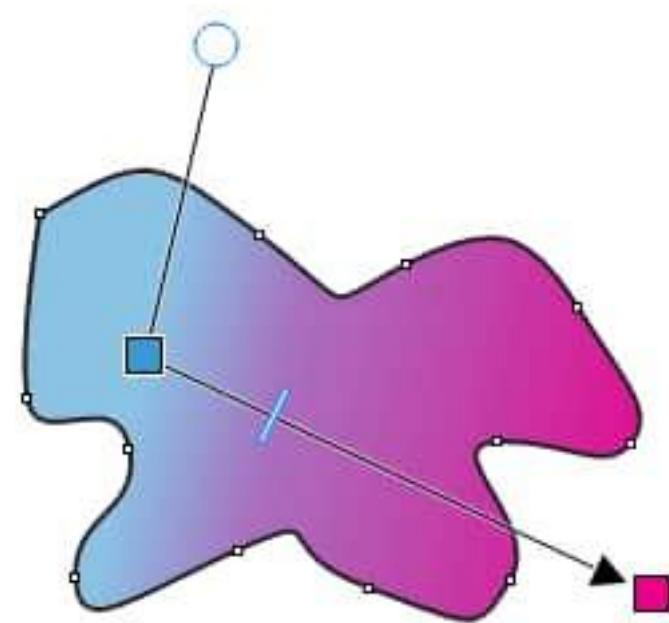


Figure. 7.19.1.6 Fountain Fill

To add more colors changes, you can drag swatches directly onto the control bar. Any of these new handles can be dragged to adjust the color progression. Double-clicking a handle along the control bar removes the handle.

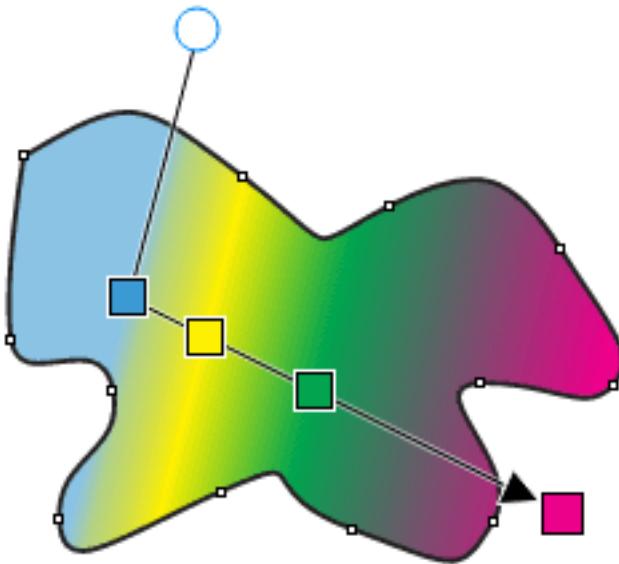


Figure. 7.19.1.7 Fountain Fill

The property bar has options to reverse gradient direction, repeat or repeat and mirror, and smooth transitions.

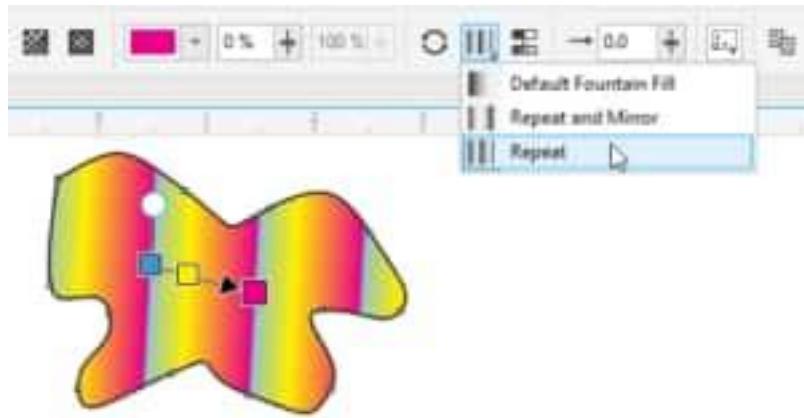


Figure. 7.19.1.8 repeat and mirror Fill

You can also switch to **Elliptical**, **Conical**, or **Rectangular** fill.

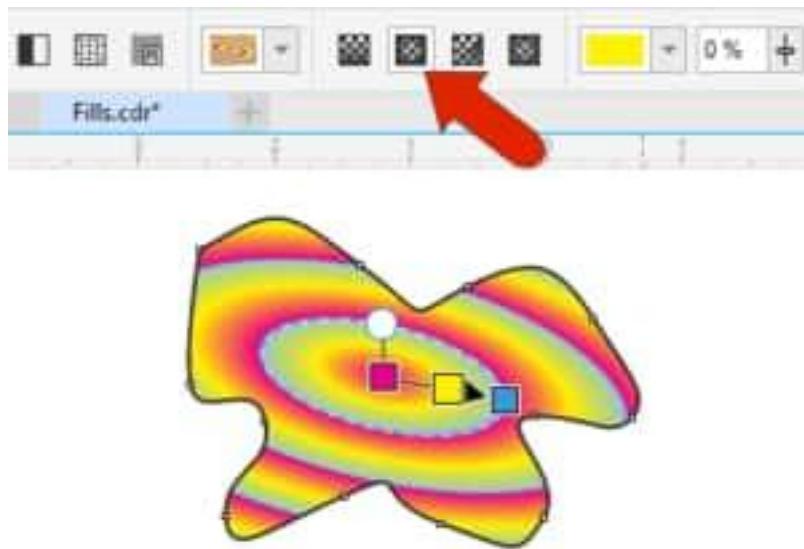


Figure. 7.19.1.9 Elliptical, Conical, or Rectangular

There are also several pre-set fills in the **Fill Picker** drop-down, any of which can be adjusted. More fountain fills can be downloaded by clicking the **Get More** icon. In the window that opens, in addition to fountain fills, there are also downloads for bitmap and vector fill bundles.

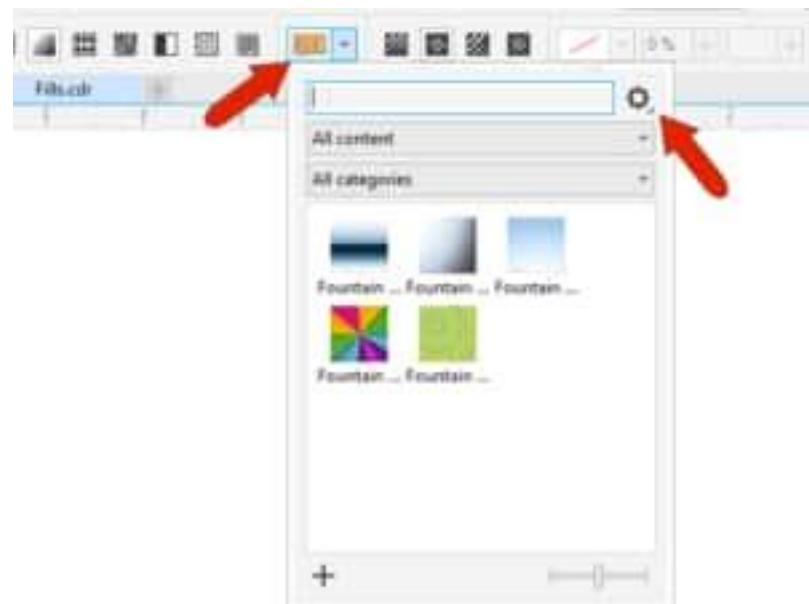


Figure. 7.19.1.10 Fill Picker

To apply a vector fill, choose one of the patterns from the drop down.

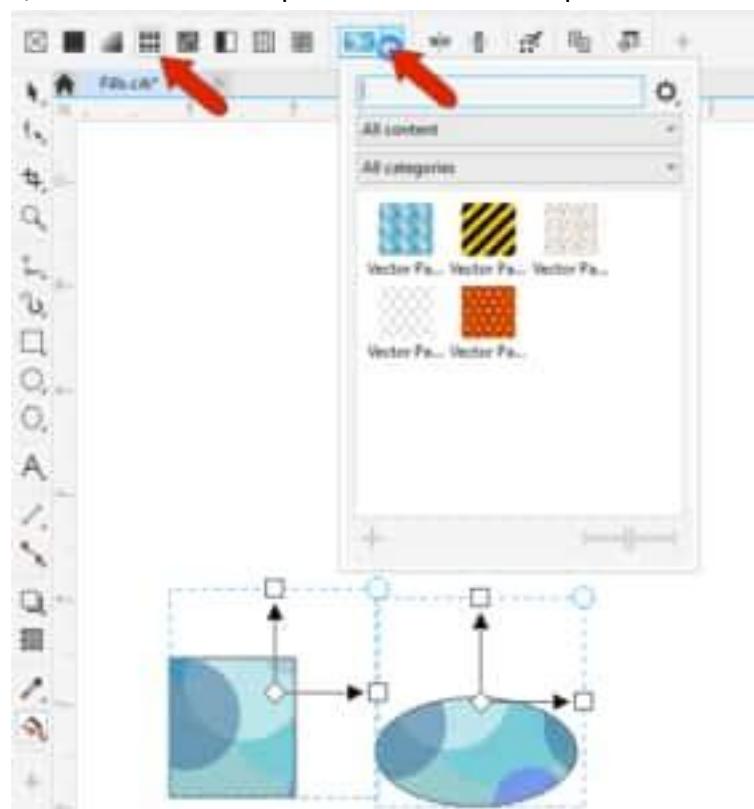


Figure. 7.19.1.11 Vector fill

You can use the handles to change pattern size and angle, and there are options to mirror tiles horizontally or vertically.

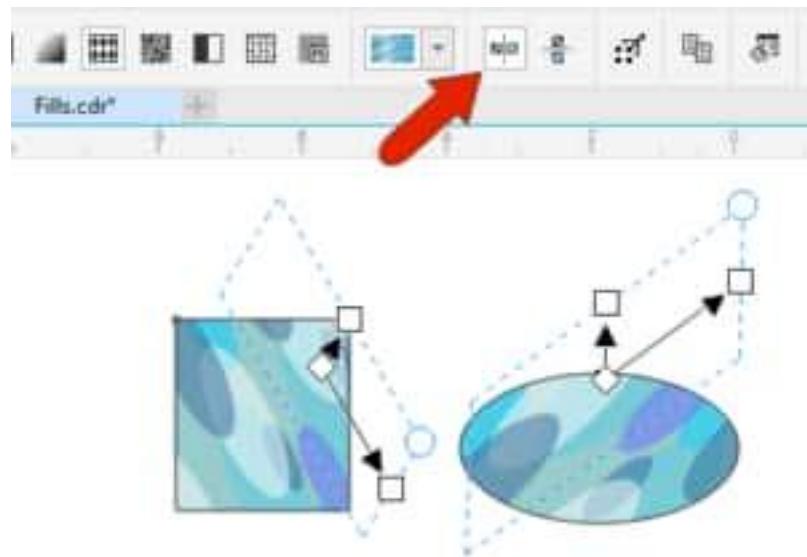


Figure. 7.19.1.12 Vector fill

The **Edit Fill** icon opens a window in which you can set exact pattern values or choose your own pattern image. This window is available for all fill types, each of which have their own settings.

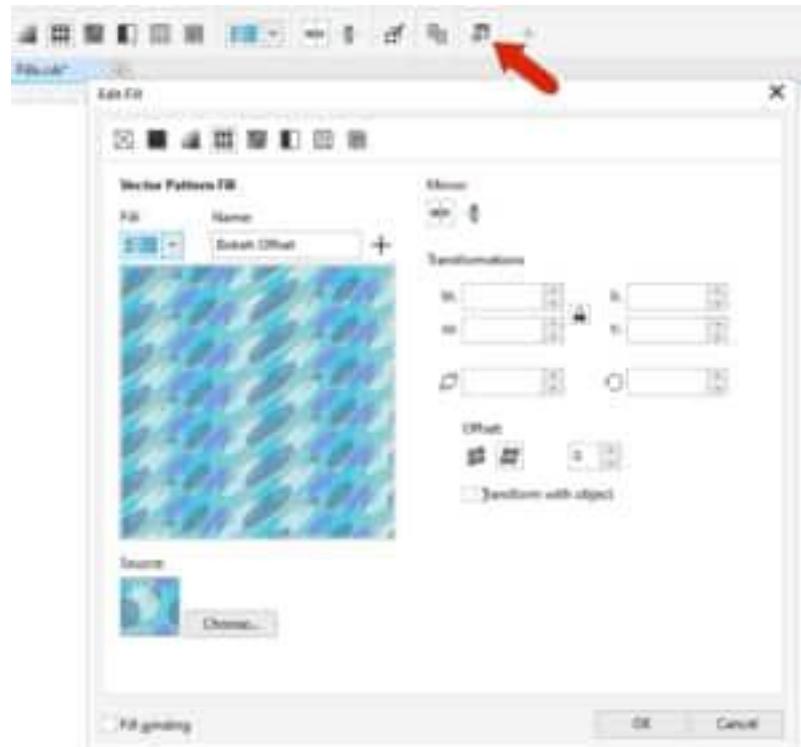


Figure. 7.19.1.13 Edit fill

To copy a fill from one object to another, first click the object you want to fill, then click the **Copy Fill** icon, and click the fill you want to apply.

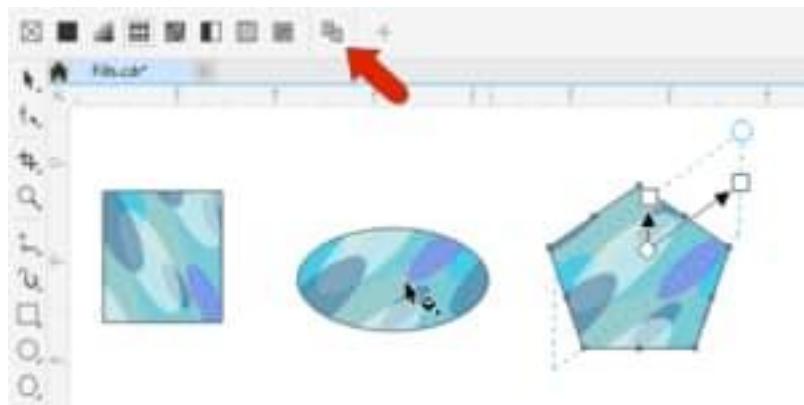


Figure. 7.19.1.14 copy fill

For **PostScript** fills, there are a number of patterns to choose from, and the **Edit Fill** window for each **PostScript** fill has options depending on the pattern itself.



Figure. 7.19.1.15 PostScript fill

For objects with thick outlines, fills can be applied to the outline if it's converted to an object. This can be done by choosing **Object > Convert Outline to Object**. Once converted, you can use the **Interactive Fill** tool to fill the outline.

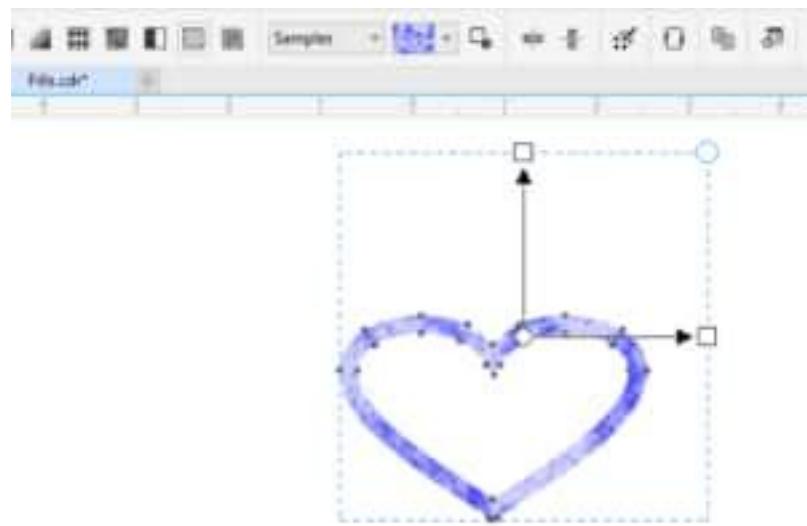


Figure. 7.19.1.15 PostScript fill

7.19.2. Smart Fill Tool

The **Smart Fill** tool can be found in the same tool group flyout as the **Interactive Fill** tool.

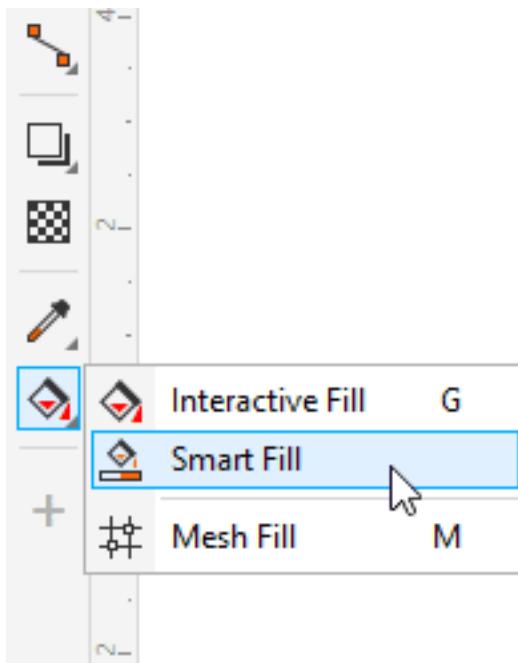


Figure. 7.19.2. Smart Fill Tool

The **Smart Fill** tool is used to fill in an enclosed area, and also can be used to create new objects. In the property bar you can use a default fill color or specify the color, and specify outline width and color as well.

Clicking within an enclosed area applies the solid fill and outlines.

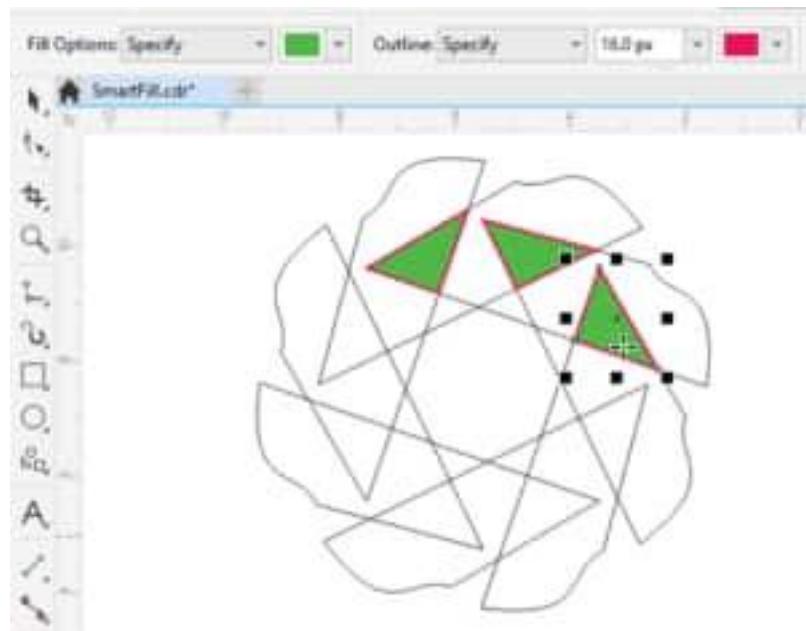


Figure. 7.19.2.1 Smart Fill Tool

Each filled area is a new object, which can be seen in the **Objects** docker. Selecting and moving these objects shows that the original objects remain intact.

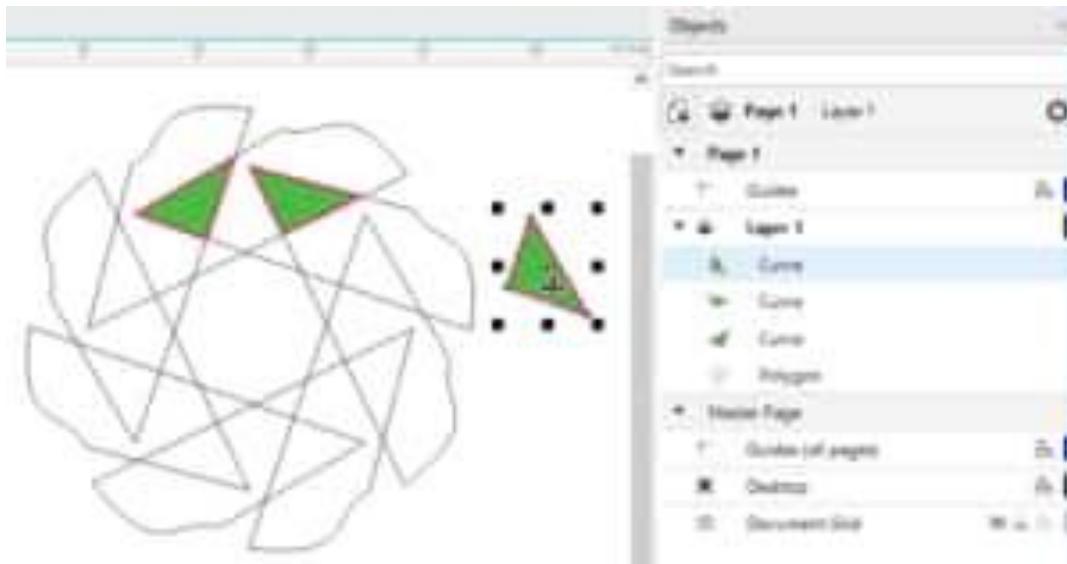


Figure. 7.19.2.2 Smart Fill Tool

7.19.3. Using mesh fills

If we fill any object along with the mesh fills, we can create some unique effects. Such as, we can design various color transitions within a direction without creating contours and blends. If we use the mesh fills, we describe the columns and rows numbers inside a grid, and we describe the interaction points of the grid. After we have designed the mesh object, we can format any mesh fill grid thru removing and adding interactions and nodes. Also, we can remove any mesh.

The mesh fills can be used to an individual path or any closed objects only. When we wish to use any mesh fill for some complex objects, we should first design the mesh-filled object. We can insert color to the mesh fill's patch and to some individual interaction nodes. Also, we can select to some mix colors for an efficient blended appearance.

To use the mesh to the object

1. Choose the **object**.
2. Inside a toolbox, click on the **Mesh fill**

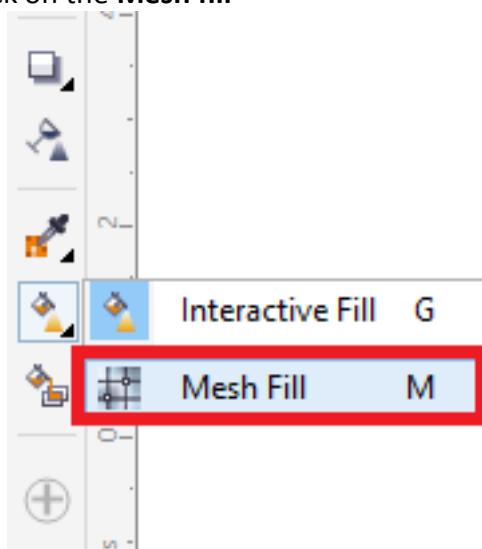


Figure. 7.19.3. Using mesh fills

3. Fill the column's number inside the **Grid size** box's top portion over a property bar.
4. Fill the row's number inside the **Grid size** box's top portion over a property bar, and click **Enter**.

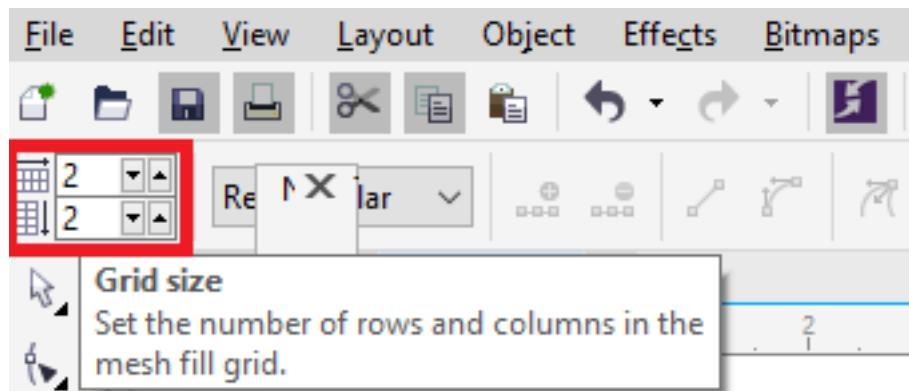


Figure. 7.19.3.1 mesh fills properties

5. Adjust some grid nodes over the object.

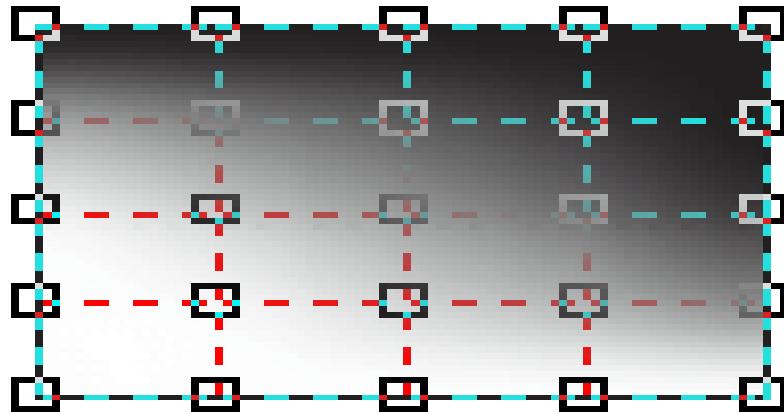


Figure. 7.19.3.2 mesh fills grid nodes

To fill colors in a mesh

1. Choose the mesh-filled object.
2. Inside a toolbox, click on the **Mesh fill**
3. Drag the color through a color palette for the patch inside an object.

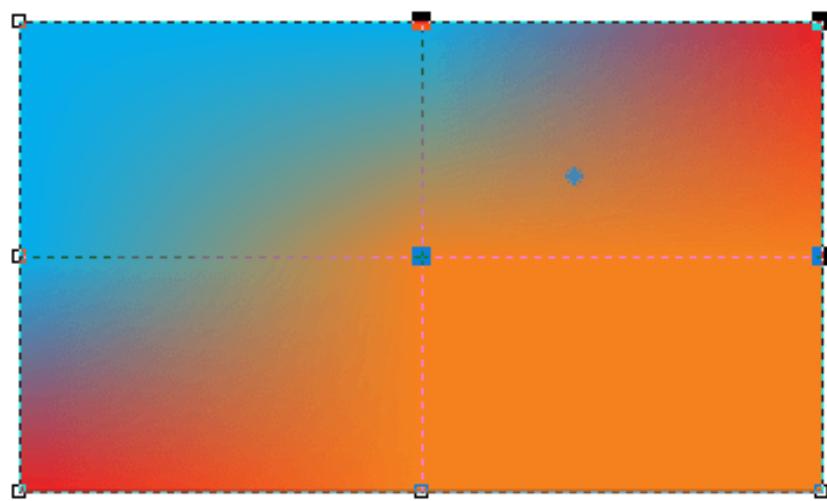


Figure. 7.19.3.3 mesh fills

To use transparency in the mesh fill

1. Choose the mesh-filled object.
2. Inside a toolbox, click on the **Mesh fill**
3. Press the node to choose the mesh's part.

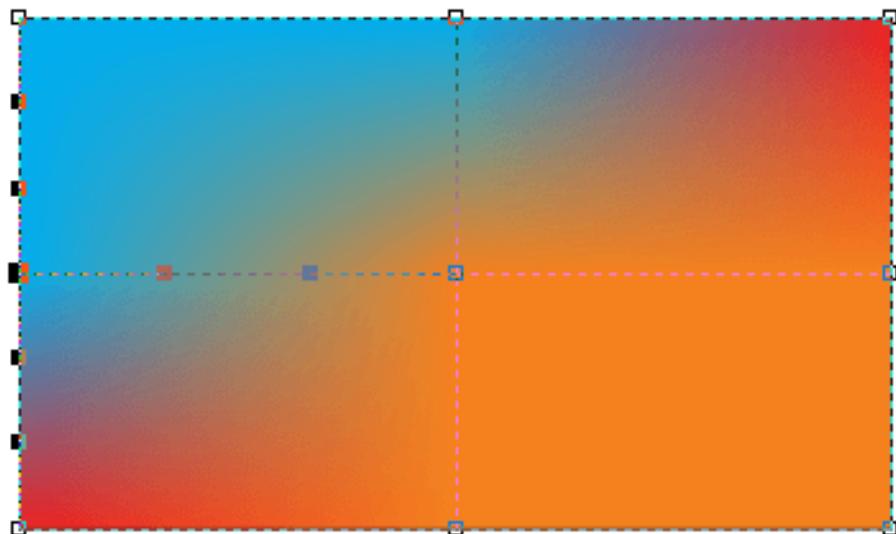


Figure. 7.19.3.4 transparency mesh fills

4. Over a property bar, and move a **Transparency** slider on the right side for increasing a selected area's transparency.

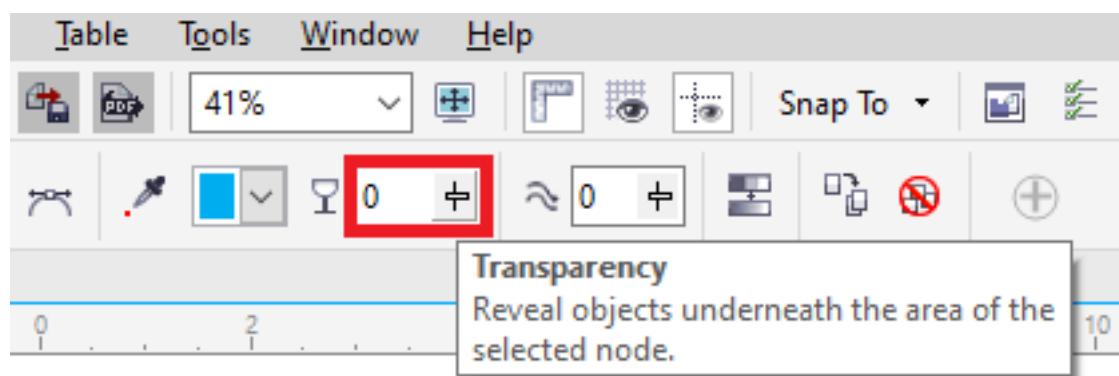


Figure. 7.19.3.5 Transparency slider

MULTIPLE CHOICE QUESTIONS

- 1. Which tool allows you to draw curved lines in a precise manner?**
 - a. Freehand Tool
 - b. Bezier Tool
 - c. Artistic Media Tool
 - d. Pen Tool
- 2. Which tool allows you to create organic shapes and patterns?**
 - a. Freehand Tool
 - b. Bezier Tool
 - c. Artistic Media Tool
 - d. Pen Tool
- 3. Which tool is used to draw straight lines or to connect two points with a straight line?**
 - a. Freehand Tool
 - b. Bezier Tool
 - c. Poly Line Tool
 - d. Pen Tool
- 4. Which tool is used to draw lines or shapes with a steady hand?**
 - a. Freehand Tool
 - b. Bezier Tool
 - c. Artistic Media Tool
 - d. Pen Tool
- 5. Which tool is used to create precise geometric shapes and lines?**
 - a. Freehand Tool
 - b. Bezier Tool
 - c. Artistic Media Tool
 - d. Pen Tool
- 6. Which tool is used to connect shapes and lines?**
 - a. 3 Point Curve Tool
 - b. Connector Tool
 - c. Dimension Tool
 - d. Poly Line Tool
- 7. Which tool is used to add measurements to a drawing?**
 - a. 3 Point Curve Tool
 - b. Connector Tool
 - c. Dimension Tool
 - d. Poly Line Tool
- 8. Which tool is used to create a spiral shape?**

- a. Spiral Tool
 - b. Polygon Tool
 - c. Graph Paper Tool
 - d. Complex Shape Tool
9. Which tool is used to create regular polygons (shapes with equal sides and angles)?
- a. Spiral Tool
 - b. Polygon Tool
 - c. Graph Paper Tool
 - d. Complex Shape Tool
10. Which tool is used to create a grid-like structure for drawing?
- a. Spiral Tool
 - b. Polygon Tool
 - c. Graph Paper Tool
 - d. Complex Shape Tool
11. Which tool is used to create complex shapes that are made up of multiple individual shapes?
- a. Spiral Tool
 - b. Polygon Tool
 - c. Graph Paper Tool
 - d. Complex Shape Tool
12. Which tool is used to create basic shapes like circles, rectangles, and triangles?
- a. Spiral Tool
 - b. Polygon Tool
 - c. Graph Paper Tool
 - d. Basic Shapes Tool
13. Which tool is used to insert special characters or symbols into a document in CorelDraw?
- a. Symbol Tool
 - b. Character Tool
 - c. Text Tool
 - d. Interactive Tool
14. Which tool is used to type and edit text in a document in CorelDraw?
- a. Symbol Tool
 - b. Character Tool
 - c. Text Tool
 - d. Interactive Tool
15. Which tool is used to quickly make changes to an object by dragging handles or using sliders in CorelDraw?

- a. Symbol Tool
 - b. Character Tool
 - c. Interactive Tool
 - d. Text Tool
- 16. Which keyboard shortcut opens the Insert Symbol Character docker in CorelDraw?**
- a. Ctrl + F1
 - b. Ctrl + F2
 - c. Ctrl + F3
 - d. Ctrl + F4
- 17. Which interactive tool in CorelDraw is used to bend an object along a curved path?**
- a. Interactive Contour
 - b. Interactive Distort
 - c. Interactive Drop Shadow
 - d. Interactive Bend
- 18. Which interactive tool in CorelDraw is used to create a copy of an object with a gradually changing outline or shape?**
- a. Interactive Contour
 - b. Interactive Distort
 - c. Interactive Drop Shadow
 - d. Interactive Envelope
- 19. Which interactive tool in CorelDraw is used to warp, stretch, or twist an object?**
- a. Interactive Bend
 - b. Interactive Contour
 - c. Interactive Distort
 - d. Interactive Envelope
- 20. Which interactive tool in CorelDraw is used to add a shadow effect to an object?**
- a. Interactive Bend
 - b. Interactive Contour
 - c. Interactive Drop Shadow
 - d. Interactive Envelope
- 21. Which interactive tool in CorelDraw is used to manipulate the shape of an object by dragging nodes or control points?**
- a. Interactive Bend
 - b. Interactive Contour
 - c. Interactive Extrude
 - d. Interactive Transparency
- 22. Which interactive tool in CorelDraw is used to create a 3D effect by extruding an object along a path or shape?**

- a. Interactive Envelope
 - b. Interactive Extrude
 - c. Interactive Bend
 - d. Interactive Distort

23. Which interactive tool in CorelDraw is used to adjust the transparency of an object or group of objects?

- a. Interactive Transparency
 - b. Interactive Contour
 - c. Interactive Distort
 - d. Interactive Drop Shadow

24. Which tool in the Eyedropper Tool Fly out allows users to sample the color of an object and apply it to another object?

- a. Color Picker Tool
 - b. Color Dropper Tool
 - c. Color Sampler Tool
 - d. Color Selector Tool

25. Which tool in the Outline Tool Fly out allows users to change the width of an object's outline?

- a. Outline Width Tool
 - b. Outline Style Tool
 - c. Outline Color Tool
 - d. Outline Fill Tool

26. Which tool in the Fill Tool Fly out allows users to apply a gradient fill to an object?

- a.** Linear Fill Tool
 - b.** Radial Fill Tool
 - c.** Conical Fill Tool
 - d.** Fountain Fill Tool

27. Which tool in the Eyedropper Tool Fly out allows users to select a range of colors from a gradient or mesh fill?

- a.** Color Picker Tool b. Color Dropper Tool
 - b.** Color Range Tool d. Color Selector Tool

28. Which tool in the Outline Tool Fly out allows users to change the shape of an object's outline from a straight line to a curved line?

- a.** Outline Width Tool. **b.** Outline Style Tool
 - c.** Outline Color Tool **d.** Outline Fill Tool

29. Which tool in the Fill Tool Fly out allows users to apply a pattern fill to an object?

- a. Uniform Fill Tool b.Texture Fill Tool c.Postscript Pattern Fill Tool. D.Interactive Fill Tool

MCQs ANSWERS

Q	Answers								
1	b	2	c	3	c	4	a	5	d
6	b	7	c	8	a	9	b	10	c
11	d	12	d	13	a	14	c	15	c
16	b	17	d	18	a	19	c	20	c
21	b	22	b	23	a	24	b	25	a
26	d	27	c	28	b	29	c		

SHORT QUESTIONS

1. What is the Freehand Tool used for in CorelDraw?
2. What is the Bezier Tool used for in CorelDraw?
3. What is the Artistic Media Tool used for in CorelDraw?
4. What is the Pen Tool used for in CorelDraw?
5. What is the Poly Line Tool used for in CorelDraw?
6. What is the 3 Point Curve Tool used for in CorelDraw?
7. What are the uses of Connector and Dimension Tools in CorelDraw?
8. What is the Spiral Tool used for in CorelDraw?
9. What is the Polygon Tool used for in CorelDraw?
10. What is the Graph Paper Tool used for in CorelDraw?
11. What is the Complex Shape tools used for in CorelDraw?
12. What are the Basic Shapes in CorelDraw?
13. What is the Symbol Character tool used for in CorelDraw?
14. What is the Text Tool used for in CorelDraw?
15. What are the Interactive Tools for Fast Changes in CorelDraw?
16. What is the Interactive Bend tool used for in CorelDraw?
17. What is the Interactive Contour tool used for in CorelDraw?
18. What is the Interactive Distort tool used for in CorelDraw?
19. What is the Interactive Drop Shadow tool used for in CorelDraw?
20. What is the Interactive Envelope tool used for in CorelDraw?
21. What is the Interactive Extrude tool used for in CorelDraw?
22. What is the Interactive Transparency tool used for in CorelDraw?

23. What is the Eyedropper Tool Fly out used for in CorelDraw?
24. What is the Outline Tool Fly out used for in CorelDraw?
25. What is the Fill Tool Fly out used for in CorelDraw?

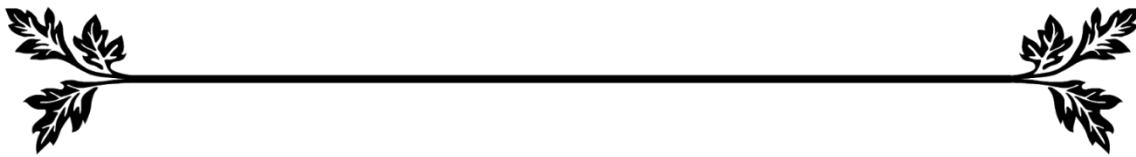
LONG QUESTIONS

1. What is the difference between the Freehand Tool and Bezier Tool, and how can they be used to create shapes in different ways?
2. What is the Artistic Media Tool, and how can it be used to create custom brush strokes and patterns?
3. What are the Pen Tools, including the Polyline Tool, and how can they be used to create complex shapes and designs?
4. What are the Connector and Dimension Tools, and how can they be used to create technical drawings and diagrams?
5. How can you create a spiral shape using the Spiral Tool, and what are some tips for adjusting its size and rotation?
6. What is the Polygon Tool, and how can it be used to create regular and irregular shapes with a set number of sides?
7. What is the Graph Paper Tool, and how can it be used to create custom grids and layouts?
8. What are the Complex Shape Tools, including the Roughen and Distort tools, and how can they be used to create more organic and natural-looking designs?
9. How can you use the Basic Shapes tool to quickly create common shapes like circles, rectangles, and triangles, and what are some tips for customizing these shapes?
10. What is the 3-Point Curve Tool, and how can it be used to create curved lines and shapes with more precision than the Freehand Tool?
11. What is the Interactive fill Tool in CorelDraw, and how can it be used to enhance designs?
12. How can you use the Mesh Fill Tool in CorelDraw to create more complex and realistic fills, and what are some tips for mastering this advanced feature?

Reference:

1. CorelDRAW X7: The Official Guide, Gary David Bouton
2. Coreldraw! for Dummies (For Dummies Computer Book Series), Deke McClelland
3. <https://learn.corel.com/tutorials/coreldraw-eyedropper-tools/>
4. <https://learn.corel.com/tutorials/using-contours-in-coreldraw/>
5. <https://design.tutsplus.com/tutorials/how-to-use-the-distort-tool-in-coreldraw--cms-2317>

CHAPTER-08



INTRODUCTION TO AUTOCAD

OBJECTIVES

8. Introduction To AutoCAD
- 8.1. Introduction to Systems
- 8.2. Startup Command
- 8.3. Unit Set Command
- 8.4. Drawing Commands
- 8.5. Basic Commands

8. Introduction To AutoCAD

AutoCAD is a commercial computer-aided design (CAD) and drafting software application.

Developed and marketed by Autodesk,^[1] AutoCAD was first released in December 1982 as a desktop app running on microcomputers with internal graphics controllers.

AutoCAD is used in industry, by architects, project managers, engineers, graphic designers, city planners and other professionals.

Definition of AutoCAD: It is a sophisticated CAD software that is synonymous with engineering drafting. The concept of AutoCAD evolved way back in the 1980's, when engineers and architects were seeking to harness the power of newly introduced personal computers to reduce the drafting time.

Features of AutoCAD:

- Powerful Drafting:
- Analyze Object Details
- Plug-ins:
- Integration
- Training Options
- Place in Industry

8.1. Introduction to Systems

System requirements

The following are system requirements for running AutoCAD smoothly on your system:

Microsoft Windows 8/8.1, Windows 7.

Minimum Intel® Pentium® 4 or AMD AthlonTM 64 processor.

2 GB of RAM (3GB Recommended) for 32-bit.

4GB of RAM (8GB Recommended) for 64-bit.

Resolution 1024x768 (1600x1050 or higher recommended) with True Color.

6 GB of free space for installation.

Windows display adapter capable of 1024x768 with True Color capabilities.

DirectX® 9 or DirectX 11 compliant card recommended.

Windows Internet Explorer 9.0 or later.

.NET Framework Version 4.5

Starting AutoCAD 2016:

To start AutoCAD 2016, double-click the AutoCAD 2016 icon on your Desktop (or)

click Start > All Programs > Autodesk > AutoCAD 2016 > AutoCAD 2016.

AutoCAD user interface:

When you double-click the AutoCAD 2016 icon on the desktop, the AutoCAD 2016 initial screen will appear.

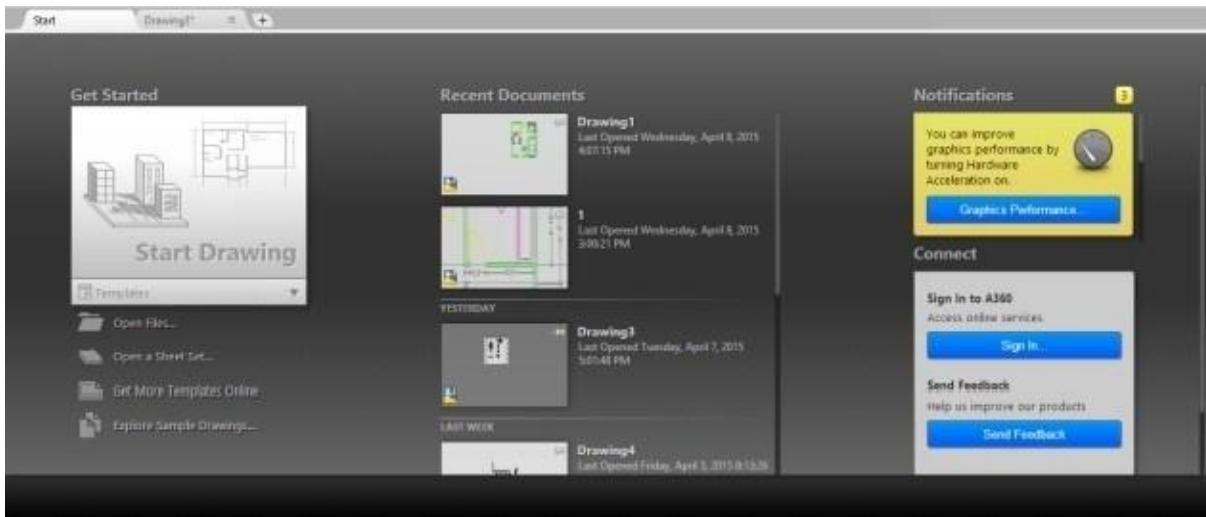


Figure. 8.1 user interface

On the Initial Screen, click Start Drawing to open a new drawing file. The drawing files consists of a graphics window, ribbon, menu bar, toolbars, command line, and other screen components, depending on the workspace that you have selected.

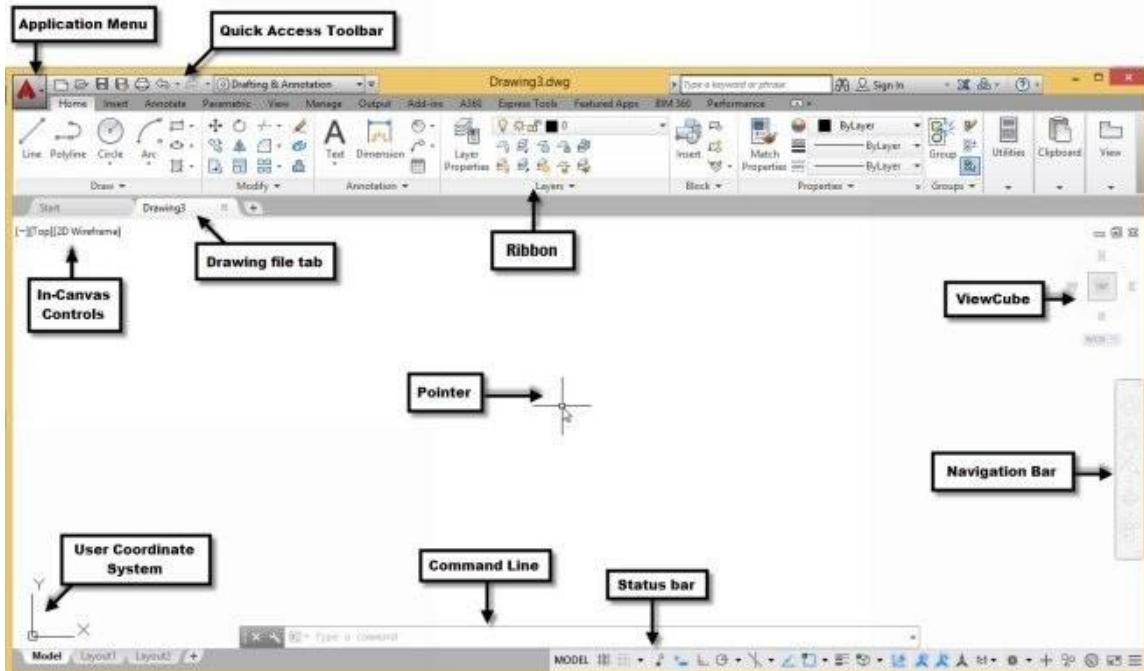


Figure. 8.1.1 user interface

Changing the Color Scheme

AutoCAD 2016 is available in two different color schemes: Dark and Light. You can change the color scheme by using the Options dialog. Click the right mouse button and select Options from the shortcut menu. On the Options dialog, click the Display tab and select an option from the Color Scheme drop-down.

8.2. Startup Command of AutoCAD:

The startup command of AutoCAD is a command-line option that allows you to specify additional startup parameters or options when launching the software. The startup command is entered in the "Target" field of the AutoCAD shortcut icon or in the command line when starting the software.

Here are the steps to set the startup command in AutoCAD:

1. Right-click on the AutoCAD shortcut icon and select "Properties" from the context menu.
2. In the Properties dialog box, go to the "Shortcut" tab.
3. In the "Target" field, add the startup command after the path to the AutoCAD executable file. For example, to start AutoCAD with a specific template file, you would add the following command after the path to the executable file:
"C:\Program Files\Autodesk\AutoCAD 2022\acad.exe" /t
"C:\Templates\mytemplate.dwt"
4. Click "OK" to save the changes.

Some common startup commands that can be used with AutoCAD include:

/b: Specifies a script file to be loaded at startup.

/p: Specifies a profile name to be loaded at startup.

/s: Specifies a support file search path.

/ws: Specifies a workspace name to be loaded at startup.

You can find more information about the available startup commands and how to use them in the AutoCAD documentation or online resources.

8.3. Unit Set Command:

The UNIT command in AutoCAD is used to set the drawing units for a specific drawing file. This command allows you to choose the type of units to use for distance, angle, and insertion scale, as well as the precision of the units.

Here are the steps to use the UNIT command in AutoCAD:

1. Open the drawing file that you want to set the units for.
2. Type "UNIT" in the command line and press Enter. This will open the Drawing Units dialog box.

3. In the Drawing Units dialog box, choose the type of units you want to use for distance, angle, and insertion scale from the drop-down menus.
4. Set the precision for the units by adjusting the values in the "Decimal Places" section.
5. Click "OK" to save the changes and close the dialog box.

For example, if you want to set the drawing units to millimeters with a precision of 2 decimal places, you would choose "Millimeters" from the "Length" drop-down menu, set the "Decimal Places" value to 2, and then click "OK" to save the changes.

Once the units are set for a drawing file, all measurements and dimensions in the file will be displayed using the specified units and precision. It's important to set the units correctly to ensure that the drawing is accurate and to avoid scaling issues when importing or exporting files.

8.4. Drawing Commands

The Draw commands can be used to create new objects such as lines and circles. Most AutoCAD drawings are composed purely and simply from these basic components.

Draw commands can be started in a number of ways. Command names or short-cuts can be entered at the keyboard, commands can be started from the Draw pull-down menu, shown on the right or from the Draw toolbar.

AutoCAD provides a wide range of drawing commands to create and edit 2D and 3D drawings. Here are some of the most commonly used drawing commands in AutoCAD:

1. **LINE:** Draws a straight-line segment between two points.
2. **CIRCLE:** Draws a circle of a specified radius or diameter.
3. **ARC:** Draws an arc of a specified radius and angle.
4. **RECTANGLE:** Draws a rectangle with specified width and height.
5. **POLYGON:** Draws a regular polygon with a specified number of sides and center point.
6. **ELLIPSE:** Draws an ellipse with specified major and minor axis lengths.
7. **SPLINE:** Draws a smooth curve that passes through a specified set of control points.
8. **HATCH:** Fills an enclosed area with a pattern or solid color.
9. **DIMENSION:** Adds dimension lines and text to annotate a drawing.
10. **MTEXT:** Adds multiline text to a drawing.
11. **BLOCK:** Defines a reusable object or symbol.
12. **INSERT:** Inserts a block or other object into a drawing.
13. **TRIM:** Trims one or more objects to the edge of another object.
14. **EXTEND:** Extends one or more objects to meet the edge of another object.
15. **FILLET:** Rounds the corners between two intersecting lines or arcs.

8.5. Basic commands

Here are some of the most basic AutoCAD commands, their uses, and corresponding shortcut keys:

1. **LINE:** Creates straight line segments between two points. **Shortcut key:** L
2. **POLYLINE:** This command can be used to make a Polyline in your drawing. **Shortcut key:** PL
3. **CIRCLE:** Creates a circle with a specified radius or diameter. **Shortcut key:** C
4. **ARC:** Creates an arc of a specified radius and angle. **Shortcut key:** A
5. **RECTANGLE:** Creates a rectangle with specified width and height. **Shortcut key:** REC
6. **ELLIPSE:** Creates an ellipse with specified major and minor axis lengths. **Shortcut key:** EL
7. **POLYGON:** This command can be used to make a polygon with minimum 3 sides and a maximum of 1024 sides. **Shortcut key:** POL
8. **EXPLODE:** This command can be used to explode objects like Polyline to simple lines, an array or a block to a simple geometry. **Shortcut key:** X
9. **OFFSET:** Creates a copy of a selected object at a specified distance. **Shortcut key:** O
10. **FILLETS:** This command can be used to add rounded corners to the sharp edges of the geometry, these round corners are also called fillets. **Shortcut key:** F
11. **TRIM:** Trims one or more objects to the edge of another object. **Shortcut key:** TR
12. **EXTEND:** Extends one or more objects to meet the edge of another object. **Shortcut key:** EX
13. **COPY:** Copies one or more objects to a new location. **Shortcut key:** CO
14. **MIRROR:** Creates a mirror image of one or more objects. **Shortcut key:** MI
15. **ARRAY:** Creates a pattern of copies of one or more objects. **Shortcut key:** AR
16. **ERASE:** Deletes one or more selected objects. **Shortcut key:** E
17. **ZOOM:** Magnifies or reduces the view of the drawing. **Shortcut key:** Z
18. **PAN:** Moves the view of the drawing in any direction. **Shortcut key:** PAN
19. **CHAMFERS:** This command can be used to add slant edges to the sharp corners, these slant edges are also called chamfers. **Shortcut key:** CHA
20. **LAYERS:** This command can be used to open layer properties manage palette which is a tool for creating and managing layers in a drawing. **Shortcut key:** LA
21. **UNDO:** Reverses the previous action. **Shortcut key:** U
22. **REDO:** Reapplies the previous action that was undone. **Shortcut key:** R
23. **SAVE:** Saves the current drawing. **Shortcut key:** CTRL+S
24. **OPEN:** Opens an existing drawing. **Shortcut key:** CTRL+O
25. **QUIT:** Exits AutoCAD. **Shortcut key:** QUIT

These basic commands are essential for creating and editing 2D drawings in AutoCAD. The corresponding shortcut keys can save time and increase efficiency when working on drawings. There are many more advanced commands in AutoCAD, but a solid understanding of these basics will provide a strong foundation for using the program.

SHORT QUESTIONS

1. Define AutoCAD?
2. Define Unit set Command?
3. Define Drawing commands?
4. Enlist some basic commands?
5. Write 03 features of AutoCAD?
6. Define Trim command & Arc command?
7. Define Fillets & Layers?
8. Define Line & Circle command?
9. write the steps to set startup command?
10. write short keys of OPEN & SAVE command?
11. What is the purpose of ROTATE command? how we can use this command?
12. What is the purpose of TRIM command. how we can use it?

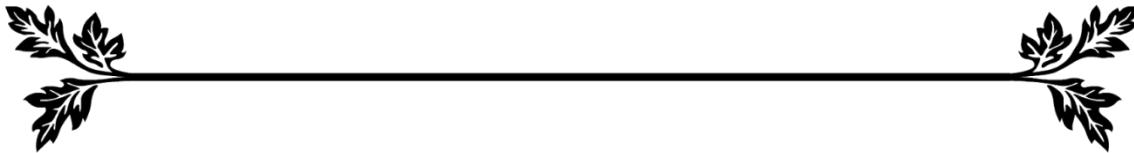
LONG QUESTIONS

- Q.1. Describe Drawing commands of AutoCAD?
- Q.2. Describe Startup command & Unit set command?
- Q.3. Describe Basic Commands?
- Q.4. Describe Unit set command ?
- Q.5. Describe preliminary adjustment in autocad drawing file?

Reference:

1. AutoCAD 2016 For Beginners, CADFolks
2. Mastering AutoCAD 2016 and AutoCAD LT 2016, George Omura and Brian C. Benton, Autodesk Official Press
3. AutoCAD 2016 Instructor, James Leach

CHAPTER-09



AUTOCAD 2D

OBJECTIVES

- 9.AutoCAD 2D
 - 9.1. Creating Commands(Circle)
 - 9.2. Creating Commands(Arc)
 - 9.3. Apply Commands
 - 9.4. Draw Commands -I
 - 9.5. Layers
 - 9.6. Draw Commands -II
 - 9.7. Hatch and Blocks Commands
 - 9.8. Elevation Drawing

9.AutoCAD 2D

AutoCAD 2D is a software program used for creating two-dimensional technical drawings and designs. It is a computer-aided design (CAD) software application developed by Autodesk that allows users to create precise, detailed drawings of buildings, mechanical parts, electrical circuits, and other types of objects.

AutoCAD 2D provides a variety of tools and features that allow users to create and edit geometries, add annotations, dimensions, and labels to drawings, and manipulate the layout and design of the drawing. It is widely used in various fields such as architecture, engineering, construction, and manufacturing to create accurate and professional-quality drawings.

9.1. Creating Commands (Circle)

To create a circle in AutoCAD, you can use the "Circle" command. Here are the steps to create a circle in AutoCAD:

1. Open AutoCAD and create a new drawing.
2. Type "Circle" in the command line and press Enter, or click on the "Circle" icon in the "Draw" panel of the "Home" tab.
3. Specify the center point of the circle by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the center point in the command line.
4. Specify the radius of the circle by clicking on a point in the drawing, or by typing the radius value in the command line.
5. The circle is created.

If you want to create multiple circles with the same center point, you can use the "Array" command to create a circular array of circles. Here are the steps to create a circular array of circles in AutoCAD:

1. Type "Array" in the command line and press Enter, or click on the "Array" icon in the "Modify" panel of the "Home" tab.
2. Select the circle you want to use as the base object.
3. Specify the center point of the circle by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the center point in the command line.
4. Specify the number of items in the array by typing the number in the command line.
5. Specify the angle between the items in the array by typing the angle in the command line, or by clicking on two points in the drawing to define the angle.
6. The circular array of circles is created.

Creates a circle.



Find The following prompts are displayed.

Center Point

Creates a circle based on a center point and a radius or diameter value.

Radius

Enter a value, or specify a point.

For example:

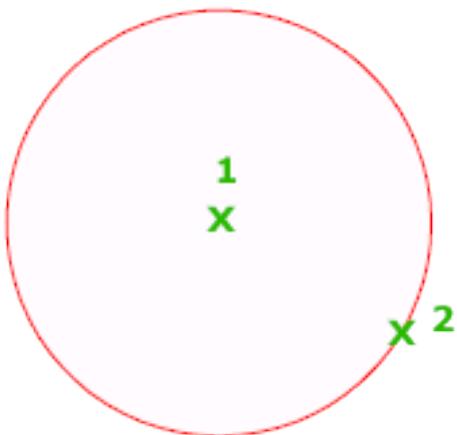


Figure. 9.1 Radius

Diameter

Enter a value, or specify a second point.

For example:

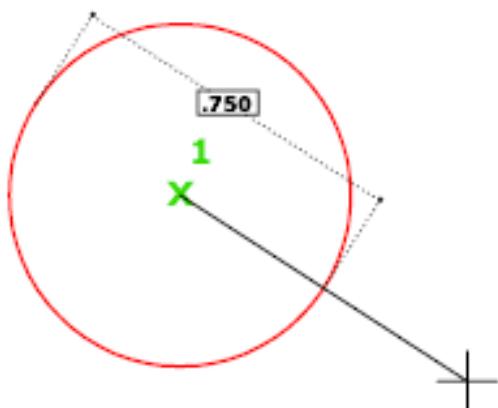


Figure. 9.1.1 Diameter

3P (Three Points)

Creates a circle based on three points on the circumference.

For example:

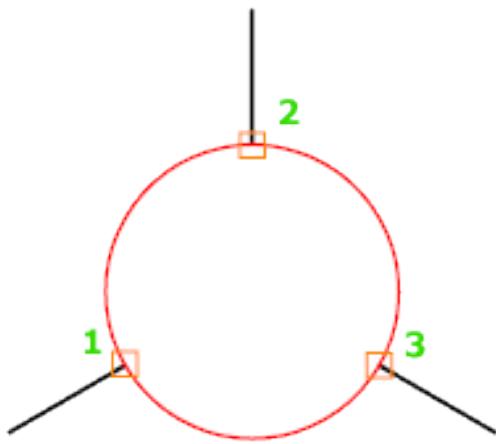


Figure. 9.1.2 3P (Three Points)

Tan, Tan, Tan

Creates a circle tangent to three objects.

For example:

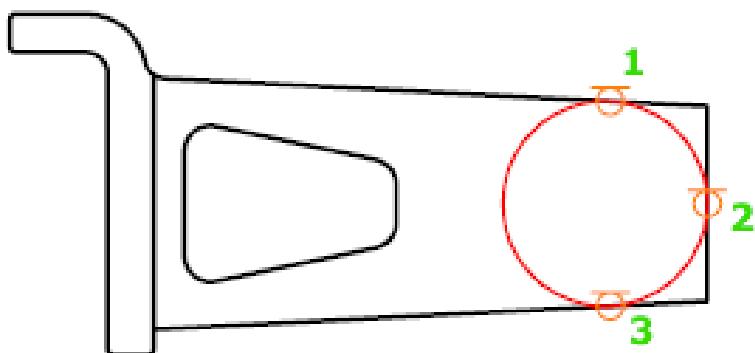


Figure. 9.1.3 Tan

'2P (Two Points)

Creates a circle based on two endpoints of the diameter.

For example:

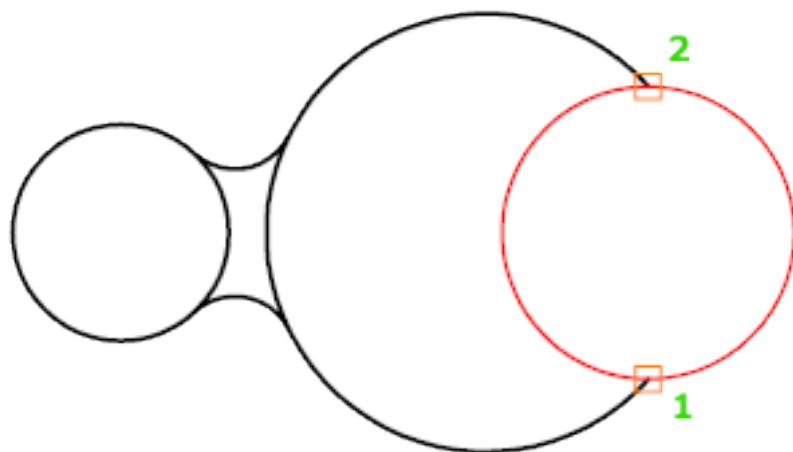


Figure. 9.1.4 2P (Two Points)

TTR (Tangent, Tangent, Radius)

Creates a circle with a specified radius and tangent to two objects.

Sometimes more than one circle matches the specified criteria. The program draws the circle of the specified radius whose tangent points are closest to the selected points.

For example:

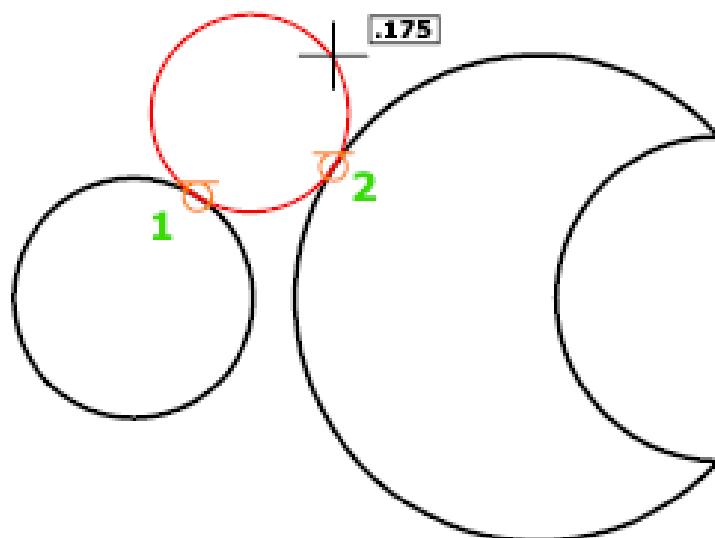


Figure. 9.1.5 TTR (Tangent, Tangent, Radius)

9.2. Creating Commands (Arc)

To create an arc in AutoCAD, you can use the "Arc" command. Here are the steps to create an arc in AutoCAD:

1. Open AutoCAD and create a new drawing.
2. Type "Arc" in the command line and press Enter, or click on the "Arc" icon in the "Draw" panel of the "Home" tab.
3. Specify the start point of the arc by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the start point in the command line.
4. Specify the end point of the arc by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the end point in the command line.
5. Specify the midpoint of the arc by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the midpoint in the command line.
6. The arc is created.

You can also create an arc using a center point and angle. Here are the steps to create an arc using a center point and angle in AutoCAD:

1. Type "Arc" in the command line and press Enter, or click on the "Arc" icon in the "Draw" panel of the "Home" tab.
 2. Specify the center point of the arc by clicking on a point in the drawing, or by typing the X,Y,Z coordinates of the center point in the command line.
 3. Specify the start angle of the arc by typing the angle in the command line, or by clicking on a point in the drawing to define the angle.
 4. Specify the end angle of the arc by typing the angle in the command line, or by clicking on a point in the drawing to define the angle.
 5. Specify the radius of the arc by typing the radius value in the command line.
- The arc is created.

9.3. Apply Commands in AutoCAD

AutoCAD has a wide range of commands that allow you to create, modify, and manage your drawings. Here are some of the basic commands that you can use:

1. Line: The line command is used to draw a straight line from one point to another. To use this command, type "LINE" in the command prompt or select the line icon from the toolbar.
2. Circle: The circle command is used to draw a circle with a specified center point and radius. To use this command, type "CIRCLE" in the command prompt or select the circle icon from the toolbar.
3. Arc: The arc command is used to draw an arc of a specified radius and angle. To use this command, type "ARC" in the command prompt or select the arc icon from the toolbar.

4. Rectangle: The rectangle command is used to draw a rectangle of specified length and width. To use this command, type "RECTANGLE" in the command prompt or select the rectangle icon from the toolbar.
5. Copy: The copy command is used to make a copy of an object. To use this command, select the object you want to copy, type "COPY" in the command prompt, and specify the destination point.
6. Move: The move command is used to move an object from one place to another. To use this command, select the object you want to move, type "MOVE" in the command prompt, and specify the destination point.
7. Rotate: The rotate command is used to rotate an object by a specified angle. To use this command, select the object you want to rotate, type "ROTATE" in the command prompt, and specify the angle of rotation.
8. Scale: The scale command is used to resize an object by a specified factor. To use this command, select the object you want to scale, type "SCALE" in the command prompt, and specify the scaling factor.
9. Trim: The trim command is used to remove a portion of an object that extends beyond a specified boundary. To use this command, type "TRIM" in the command prompt, select the boundary edge, and select the portion of the object you want to trim.
10. Extend: The extend command is used to extend an object to meet a specified boundary. To use this command, type "EXTEND" in the command prompt, select the boundary edge, and select the object you want to extend.

9.4. Draw Commands –I

The following topics will review the commands available on the Draw toolbar.

Draw Toolbar



Figure. 9.4 Draw Toolbar

9.4.1. Line Command

The line command will allow you to create a series of contiguous line segments. Each segment is a line object that can be edited separately.

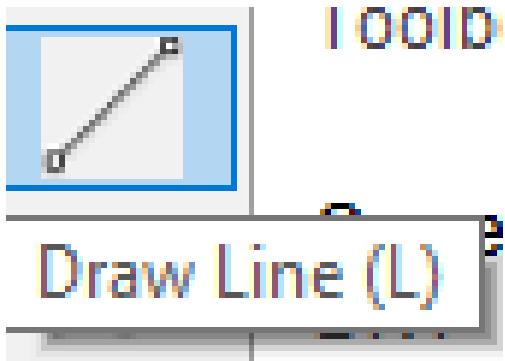


Figure. 9.4.1 Draw Line

Command Options

While using the line command, you will have the following options available:

Close – The close option will become available once you have two or more lines drawn. Typing "c" in the command line will create a closed shaped from the lines current point back to the starting point.

Undo – Typing "u" in the command line will undo the previous line drawn.

Ortho Mode – Ortho mode affects your ability to draw lines. If ortho mode is enabled, you will only be allowed to draw lines along the UCS axis. If ortho mode is turned off, you will be able to draw lines at any angle. To toggle ortho mode on and off, press the *F8* key. Once pressed, the command line will tell you if ortho mode is enabled or not.

9.4.2 Polyline Command

The polyline command will allow you to create a sequence of segments that will be a single object. You can create straight-line segments, arc segments, or a combination of the two. Each polyline must be edited as a whole, unlike the line command segments.

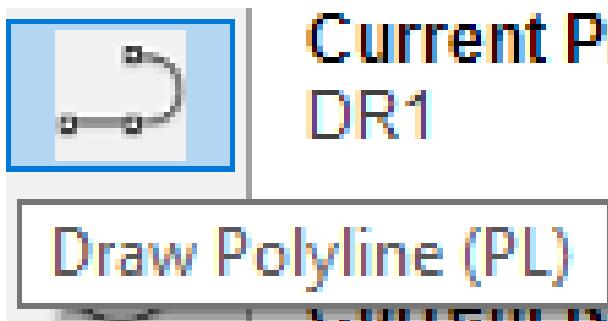


Figure. 9.4.2 Draw Polyline (PL)

Command Options

While using the polyline command, the following options will be available:

Arc – The arc option will allow you to create an arc segment for the polyline. Please review the Draw Arc (a) section for additional information on drawing arcs.

Close – The close option will become available once you have two or more lines drawn. Typing "c" in the command line will create a closed shape from the line's current point back to the starting point.

Halfwidth – The halfwidth option sets the width of the next polyline segment you draw. Widths that are greater than zero produce wide lines, which will automatically fill.

Length – The length option draws a line segment of a specified length at the same angle as the previous line segment, even if you are starting a new polyline command. If the previous segment is an arc, the new line segment is drawn tangent to that arc segment. If you use the length option, you will be prompted for the length of the line.

Undo – Typing in "u" in the command line will undo the previous line segment drawn.

Width – The width option sets the width of the next polyline segment you draw. Widths that are greater than zero produce wide lines, which will automatically fill.

Ortho Mode – Ortho mode affects your ability to draw lines. If ortho mode is enabled, you will only be allowed to draw lines along the UCS axis. If ortho mode is turned off, you will be able to draw lines at any angle. To toggle ortho mode on and off, press the *F8* key. Once pressed, the command line will tell you if ortho mode is enabled or not.

9.4.3. Circle Command

The circle command will create a circle entity.

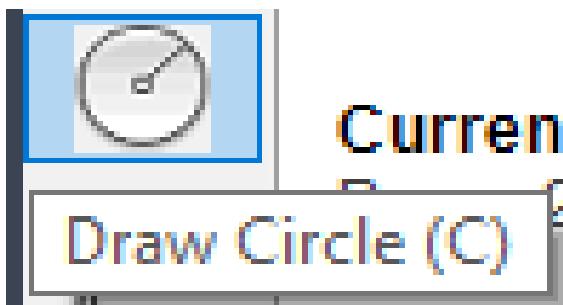


Figure. 9.4.3 Draw Circle (C)

Command Options

While using the circle command, you will have the following options available before you pick the first point.

3P – The 3P, or three-point, option allows you to pick three points on the circumference of the circle.

2P – The 2P, or two-point, option allows you to pick two endpoints of the diameter of the circle.

Ttr – The Ttr (tangent, tangent radius) option draws a circle with a specified radius tangent to two objects. You will pick three points with the first point

being an object for the first tangent of the circle. The selected object must be a circle, arc, or line. The second point is the second tangent of the circle. The selected point must be a circle, arc, or line. Then you can specify the radius of the object.

Diameter – If you use the standard placement method, the center of the circle, to draw a circle, you will have the diameter option for your second point. Type "d" in the command line to enter the diameter of the circle instead of specifying the radius.

9.4.4. Arc Command

Use the Arc command to create an arc drawing element. You can create an arc by specifying various combinations of points and values. The standard procedure to create an arc is to specify three points, the start point, the center, and the endpoint of the arc. The distance between the start points and the center determines the radius of the arc. Although this is the standard way to create an arc segment, you can use the options to create the arc in various ways.

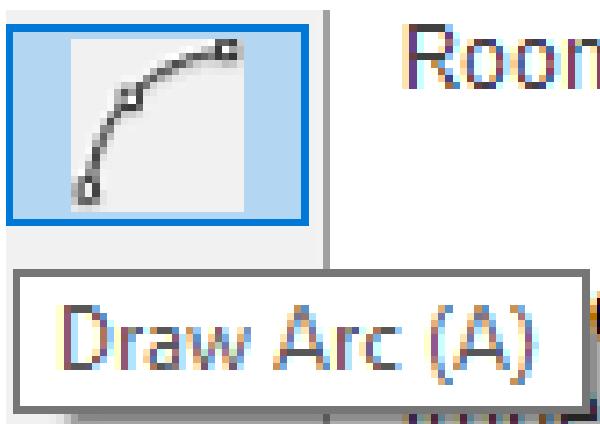


Figure. 9.4.4 Draw Arc (A)

Command Options

While using the Arc command, you will have many different options available during the command, depending on how you draw the arc. For example, if you pick the starting point as your first point, you will have the option of selecting the center point or the endpoint for the next point you pick on screen. Review the options below to see when they are available.

It is important to remember while choosing options that 3 points, the first point (1), second point (2), and third point (3) must be selected to draw an arc. Those points can be any combination of the starting point, center point, and endpoint.

Center – The center option will be available when you first begin the Arc command. This will allow you to choose the center point of the arc for the starting point (1).

Center/End – The Center and End options will be available if you selected the starting point as the arc's first point (1). Type in "E" for End to select the arc's endpoint as the second point (2). You don't have to type in "C" for Center for the arcs second point (2). This is the default option.

Angle/Chord Length – Angle and chord length options will be available when you have selected the center point as your first point (1) and then a second point (2) at either end of the arc. Type in "A" for angle and then enter in the angle dimension in the command line. Enter in "L" for chord length to enter in the length of the chord. The chord length is the distance between the arcs start point and endpoint.

Angle/Direction/Radius – The last set of options will be available if you have selected the start point (1) and endpoint (2) as the arcs first two points. Type in "A" to enter an angle dimension from the start point and endpoint. Type in "D" to enter in Direction. The direction begins the arctangent. Type in "R" for Radius to enter the dimension of the arc's radius.

9.4.5. Rectangle Command

This command will create a rectangular polyline by allowing you to select the two opposite corners of the rectangle. You also can control the type of corners (fillet, chamfer, or square).

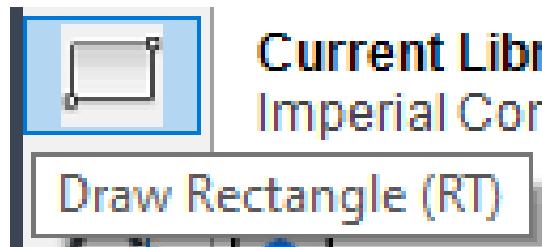


Figure. 9.4.5 Draw Rectangle (RT)

Command Options

While using the polyline command, the following options will be available:

Chamfer/Elevation/Fillet/Thickness/Width

Area/Dimensions/Rotation – Once you have selected the first corner of the rectangle, you will have the following options available.

9.4.6. Text Command

The Text command will create a single-line text object. You can use single-line text to create one or more lines of text, where each text line is an independent object that you can relocate, reformat, and modify.



Figure. 9.4.6 Draw Text (TX)

Command Options

While using the text command, you will have the following options available before you pick your first point:

Justify/Style

9.4.7. Linear Dimension Command

The Linear Dimension command will allow you to create a horizontal or vertical dimension. You can also select an object in the drawing to dimension.

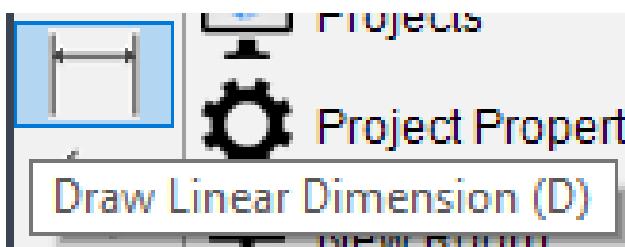


Figure. 9.4.7 Draw Linear Dimension (D)

Command Options

While using the linear dimension command, you will have the following options available before you pick your first point:

Select Object – Instead of selecting points to create a dimension, you can select an object, and a dimension will automatically be created for the selected entity.

Mtext/Test/Angle/Horizontal/Vertical/Rotated – The following options will be available after you have selected two points for the dimension.

9.4.8. Angular Dimension Command

The Angular Dimension command will allow you to create a dimension at an angle. Although very similar to the Linear Dimension command, this will create the dimension parallel to the two points selected in the drawing. You can also select an object in the drawing to dimension.



Figure. 9.4.8 Draw Angular Dimension (DAL)

Command Options

While using the linear dimension command, you will have the following options available before you pick your first point:

Select Object – Instead of selecting points to create a dimension, you can select an object, and a dimension will automatically be created for the selected entity.

Mtext/Text/Angle – The following options will be available after you have selected two points for the dimension.

9.5. Draw Commands-II

9.5.1. CONCEPTS:

a. Draw commands addressed here create more complex objects than those discussed before

Draw commands I. The draw commands covered previously (Line, Circle, Arc, and Pline) create simple objects composed of one object. The shapes created by the commands covered in this lecture are more complex. Most of the objects appear to be composed of several simple objects, but each shape is actually treated by AutoCAD as one object. Only Divide and Measure commands create multiple objects. The following commands are explained: Xline, Ray, Polygon, Rectangle, Donut, Spline, Ellipse, Divide, and Measure.

b. Draw Command Access: Draw commands can be invoked by any of the three command entry methods:

⇒ Tabs Select the command or dialog box by PICKing an icon (tool) from a tab.

⇒ Panels Select the command or dialog box from a panel.

⇒ Keyboard Type the command name, command alias, or accelerator (Ctrl) keys at the keyboard.

9.5.2. Commands:

a. XLINE (Construction Line)

Tab-panel Command (type) ALIAS (type) Short-cut Home – Draw XLINE XL ---

When you draft with pencil and paper, light “construction” lines are used to lay out a drawing. These construction lines are not intended to be part of the finished object lines but are helpful for preliminary layout such as locating instructions, center points, and projecting between views.

There two types of construction lines – Xline and Ray.

An Xline is a line with infinite length, therefore having no endpoints.

A Ray has one “anchored” endpoint and the other end extends to infinity. An Xline has no endpoints (Endpoint Osnap cannot be used) but does have a root, which is

theoretical midpoint (Midpoint Osnap be used). If Trim or Break is used with Xlines or Rays such that two end-points are created, the construction lines become Line objects. Xlines and Rays are drawn on the current layer and assume the current linetype and color (objectspecific or BYLAYER).

→ There are many ways that you can create Xlines as shown by the options appearing at the command prompt.

→ All options of Xline automatically repeat so you can easily draw multiple lines.

Command: xline Hor/ Ver/ Ang/ Bisect/ Offset/ From point

The default option only requires that you specify two points to construct the Xline.

The first point (“From point”) becomes the root and anchors the line for the next point specification.

The second point, or “through point”, can be PICKed at any location and can pass through any point (Osnap can be used.).

If horizontal or vertical Xline are needed, ORTHO can be used in conjunction with the “From point;” option. Command: xline Hor/ Ver/ Ang/ Bisect/ Offset/ PICK Through point:

Hor

This option creates a horizontal construction line.

Type the letter “H” at the “From point:” prompt.

You only specify one point, the “Through point” or root.

Ver

Ver creates a vertical construction line.

You only specify one point, “Through point” (root).

Ang

The Ang option provides two ways to specify the desired angle.

You can

- (1) enter angle or
- (2) select a reference line (Line, Xline, ray, or Pline) as the starting angle, then specify an angle from the selected line (in counter-clockwise direction) for the Xline to be drawn.

Command: xline Hor/ Ver/ Ang/ Bisect/ Offset/ a Reference/:

Bisect

This option draws the Xline at an angle between two selected points.

First, select the angle vertex, then two points to define the angle.

Command: xline Hor/ Ver/ Ang/ Bisect/ Offset/ b Angle vertex point:

PICK Angle start point:

PICK Angle end point:

PICK Angle end point:

Enter Command:

Offset

Offset creates an Xline parallel to another line.

This option operates similarly to the Offset command.

You can: Specify a Distance from the select line

Or (2) PICK a point to create the Xline Through. With the Distance option, enter the distance value,

select a line (Line, Xline, Ray, or Pline), and specify on which side to create the offset Xline.

Command: XLINE Hor/Ver/Ang/Bisect/Offset/o Offset distance or through:

(value) or PICK Select a line object: PICK Side to offset? Select a line object: Enter Command.

9.6. Layers:

In AutoCAD 2D, layers are used to organize and control the visibility of drawing objects. Layers can be thought of as transparent sheets that can be stacked on top of each other, each containing a set of related objects.

1. Here are the default layers in AutoCAD 2D:
2. 0 layer: This is the default layer that all objects are created on. It cannot be deleted or renamed.
3. Defpoints layer: This layer is used to store reference points and cannot be deleted or renamed.
4. Layer 0: This layer is similar to the 0 layer, but objects can be created and deleted on it. It is recommended to keep this layer empty and use it as a base for creating other layers.
5. Dimensions layer: This layer is used to store all dimension objects.
6. Text layer: This layer is used to store all text objects.
7. Centerlines layer: This layer is used to store all centerlines objects.
8. Hidden layer: This layer is used to store objects that are not visible in the drawing but are still required for information purposes.
9. Border layer: This layer is used to store the border of the drawing.
10. Title block layer: This layer is used to store the title block of the drawing.
11. Grid layer: This layer is used to store the grid lines.

These default layers can be modified or deleted as per the requirement of the drawing.

Additionally, new layers can also be created and customized to organize the drawing objects more efficiently.

9.7. Hatch and Blocks Commands:

Hatch and Blocks are two important commands in AutoCAD that help to improve productivity and efficiency in drawing creation. Here's a brief overview of each command:

Hatch Command:

The Hatch command is used to fill an enclosed area or boundary with a pattern or solid color. It is a quick way to add texture and depth to a drawing. To use the Hatch command, follow these steps:

1. Type "Hatch" in the command line or select the Hatch tool from the Home tab in the ribbon.
2. Select the area or boundary to be hatched.
3. Choose the hatch pattern, angle, and scale.
4. Click "OK" to apply the hatch.

Blocks Command:

The Blocks command is used to create reusable content in a drawing. It is an effective way to reduce the time spent on repetitive tasks and ensure consistency in drawings. To use the Blocks command, follow these steps:

1. Create the content to be saved as a block.
2. Type "Block" in the command line or select the Block tool from the Home tab in the ribbon.
3. Select the objects to be included in the block.
4. Choose the insertion point and name for the block.
5. Click "OK" to create the block.

Once created, blocks can be inserted into a drawing using the Insert command. Blocks can be scaled, rotated, and mirrored like any other object in the drawing, and changes made to a block will be updated throughout the drawing. This makes blocks an extremely useful and powerful tool in AutoCAD.

9.8. Elevation drawings:

Elevation drawings are a type of technical drawing used in architecture and engineering to represent the vertical faces of a building or structure. Elevation drawings provide a clear view of the exterior of a building or structure, including the height and relationship of the various components, such as doors, windows, walls, and rooflines. Here are the basic steps to create an elevation drawing in AutoCAD:

1. Open a new drawing in AutoCAD and set the units to match the scale of the project.
2. Create a new layer for the elevation drawing and set it as the current layer.
3. Draw the outline of the building or structure using lines and polylines.
4. Use the Offset command to create the thickness of the walls.

5. Add details such as doors, windows, and other features using the appropriate AutoCAD commands.
6. Use the Hatch command to add shading or texture to the walls.
7. Add dimensions to the drawing using the Dimension command.
8. Add text to the drawing to label the various components.
9. Save the drawing with a descriptive name.

Elevation drawings can be created for each side of a building or structure, and multiple elevations can be combined to create a comprehensive set of drawings for the project.

Elevation drawings are typically created in conjunction with floor plans, sections, and details to provide a complete set of construction documents for the project.

MULTIPLE CHOICE QUESTIONS

1. In AutoCAD 2D Modelling, which axis is not accessible for drafting?

- A.X B.Y C.Z D.WCS

2. Shortcut for Trim command is,

- A. T B. TR C. TI D. X

3. A fillet command is used to produce,

- A. Sharp corners
B. Round corners
C. Both of the above
D. None of the above

4. AutoCAD commands can be accessed in,

- A. Drawing area
B. Status bar
C. Tool bars
D. Command window

5. In AutoCAD offset command can be used for drawing

- A. Infinite long lines
B. Parallel lines
c. Intersecting lines
D. None of above

6. What are the Advantages of AutoCAD?

- A. Improve the quality of designs
B. Increase the productivity of the designer
C. Creates drawings with accuracy and quickly
D. All of the above

7. How many units are available in AutoCAD?

- A.2 B.3 C.4 D.5

8. The hatch pattern used to fill a closed area,

- A. ANSI31 B. ANGLE C. SOLID
 B. Filled area can't be made with hatch command

9. The extension for AutoCAD drawing file is,

- A. DWG B. DWT C. DWF D. DXF

10. AutoCAD file is saved in which format?

- A. DWG B. DWT C. DWF D. DXF

MCQS ANSWER

Q.No.	Answer	Q.No.	Answer
1	c	6	d
2	b	7	d
3	c	8	c
4	d	9	a
5	b	10	a

SHORT QUESTIONS

1. Define Polyline command?
2. Define Hatch & Block commands?
3. Define rectangular command?
4. Define Arc command & circle command?
5. Differentiate between draw commands-I & draw commands-II?
6. Define Elevation Drawings?
7. Define Layers?
8. Define Text Command?
9. Define ctrl+0 and ctrl+shift+s short keys of autocad?
10. Write steps to draw an arc using start,center,angle option?

LONG QUESTIONS

Q.1 Describe Draw commands-I and Draw commands-II?

Q.2 write detailed note on followings:

i- Hatch & block commands

ii- Elevation drawings

Q.3 Briefly describe Layers in AutoCAD?

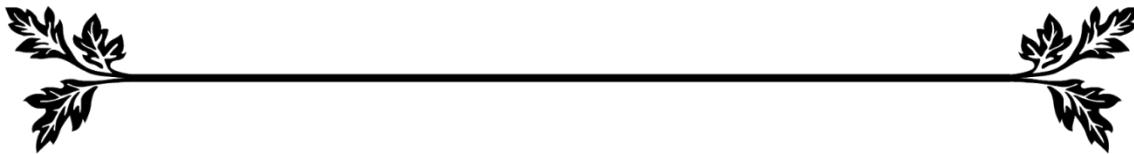
Q.4 Describe Apply commands in AutoCAD 2D?

Q.5. Describe creating command (circle) and creating command (arc)?

Reference:

1. AutoCAD 2016 For Beginners, CADFolks
2. Mastering AutoCAD 2016 and AutoCAD LT 2016, George Omura and Brian C. Benton, Autodesk Official Press
3. AutoCAD 2016 Instructor, James Leach

CHAPTER-10



AUTOCAD 3D

OBJECTIVES

10. AutoCAD 3D 6
- 10.1. 3D Drawing
- 10.2. 3D Commands
- 10.3. Creating a Building in 3D
- 10.4. AutoCAD Keyboard Shortcuts

10.AUTOCAD 3D

AutoCAD 3D allows users to create objects such as lines, surfaces, and solids, and manipulate them in three dimensions. This software provides a range of tools for creating and editing 3D models, including extrusion, lofting, sweeping, and boolean operations. Additionally, AutoCAD 3D can import and export files in a variety of formats, including STL, STEP, and IGES, which are commonly used for 3D printing and manufacturing.

AutoCAD 3D is widely used in various industries such as architecture, engineering, and construction (AEC), product design, and mechanical engineering. It is an important tool for creating accurate and detailed 3D models and drawings, and it helps designers and engineers visualize and communicate their ideas effectively.

10.1. 3D Drawing

3D drawing in AutoCAD refers to the process of creating three-dimensional objects, surfaces, and models using the AutoCAD software. It involves creating a 3D model of an object or scene by defining its shape, size, and position in three dimensions.

Step 1

Create the following circles using CIRCLE command from draw panel of home tab, make sure circle with radius 2.5 units has its center on the circumference of the circle with radius 26 units.

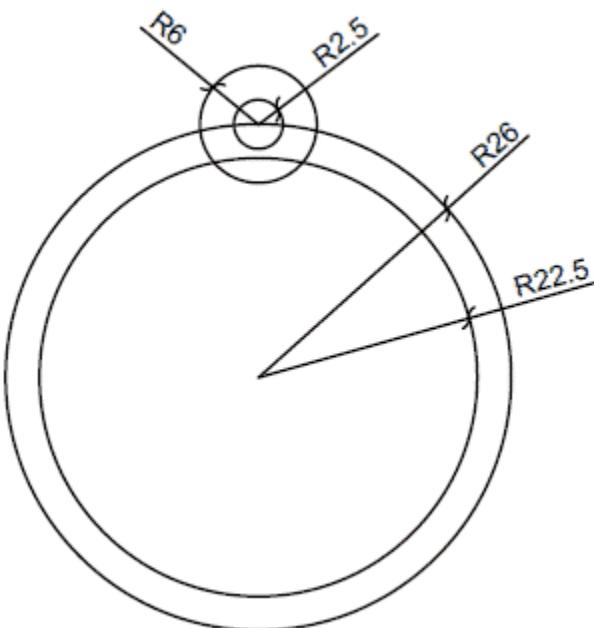


Figure. 10.1 Step-1

Step 2

Select Polar Array from the Modify panel of Home tab and select two small circles on the top of geometry. Now specify the center of the largest circle as the center of the array and enter 4 in the Number of Items field. You will get an array like the one shown in the image below.

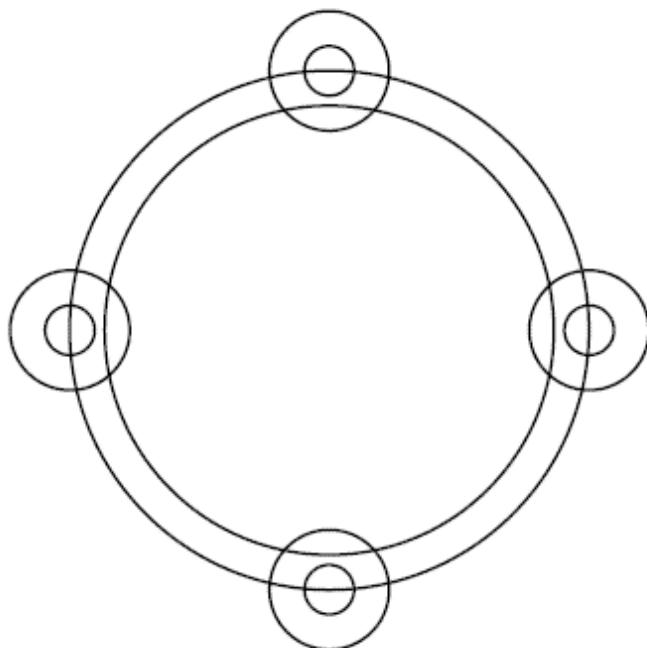


Figure. 10.1.1 Step-2

Step 3

Delete the biggest circle and select FILLET command now enter R on the command line and type 7 as the fillet radius. Now apply this fillet at the intersections of the circle with R2.5 and R22.5 as shown in the image below.

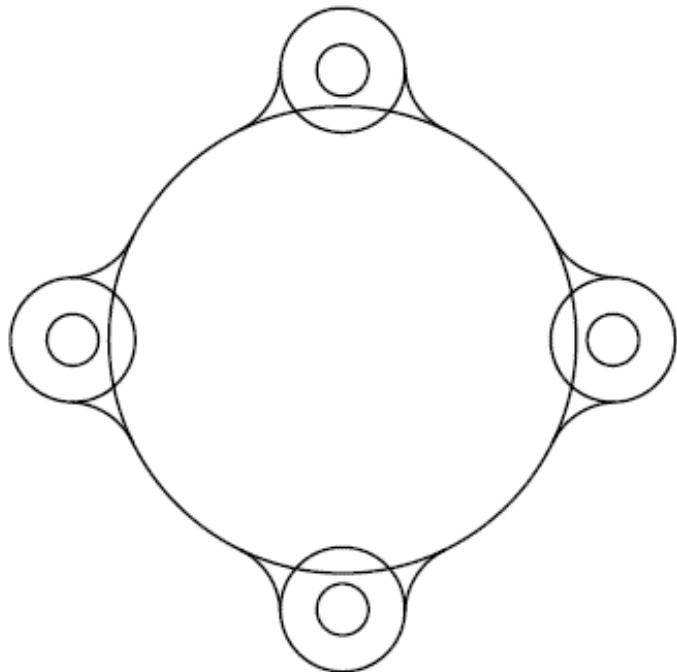


Figure. 10.1.2 Step-3

Step 4

Trim all the geometries to make it look like the image below.

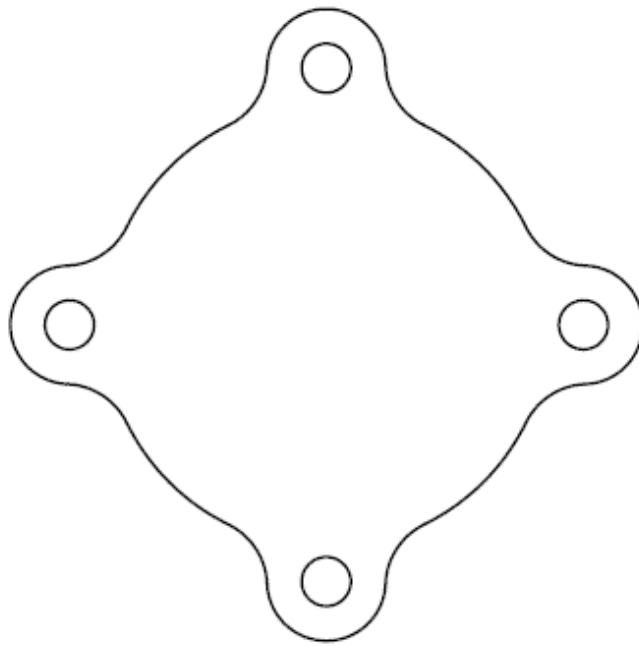


Figure. 10.1.3 Step-4

Step 5

Type J on the command line and press enter then select complete geometry and press enter again. This will join all external 2D segments into a single unit. You may need to repeat the JOIN command couple of times to join the geometry completely.

Step 6

Change view to southwest isometric and visual style to Shaded from Views and Visual styles panel of Visualize tab.

Step 7

Type PRESSPULL on the command line and click at a location inside the geometry, make sure you are clicking inside the geometry and not on the geometry. Enter the height of 3 units on the command line and press Enter again.

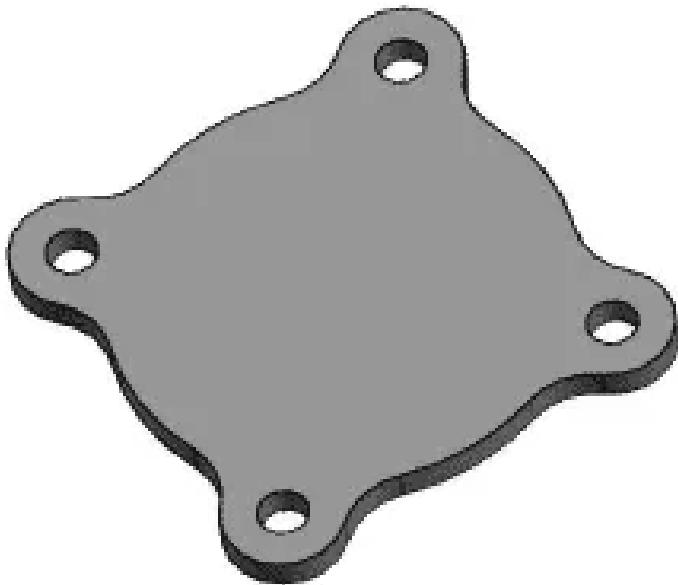


Figure.10.1.4 Step 7

This command will add the thickness of 3 units to the 2D geometry which we have made so far and your drawing will look like the image shown above.

Step 8

Create a circle of R17 on the top of the object made in previous step, but for making a circle on top plane you need to make sure that dynamic UCS is turned on. Press F6 to turn on dynamic UCS then select circle command and move your cursor to the top plane and click at the center of geometry for circle's center and enter a radius of 17 units and press Enter again.

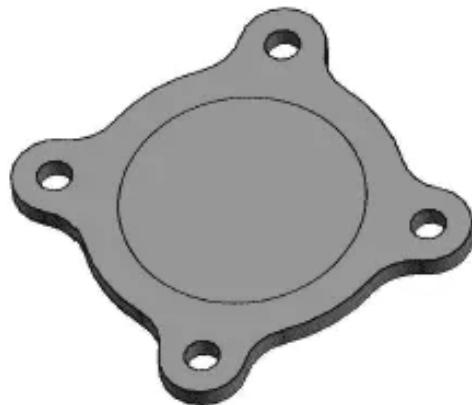


Figure.10.1.5 Step-8

Step 9

Type EXT on the command line and press enter then select the circle we have drawn in previous step and press enter again. Enter a height of 5.5 units and press enter again to exit the extrude command.



Figure.10.1.6 Step-9

Step 10

Now create another circle of radius 14 units with the same center on top of geometry which we have drawn in the previous step and extrude it by 3.5 units the same way we did previously.



Figure.10.1.7 Step-10

Step 11

Now type UNION and Press ENTER then select complete geometry and press enter again, this will ensure that all geometries get combined as a single unit.

Step 12

Create a circle of R11 on the top most surface of the geometry. Now type PRESSPULL on the command line and press Enter then click inside the circle of radius 11 units and enter -12 as depth of geometry, this will make a hole in existing geometry.

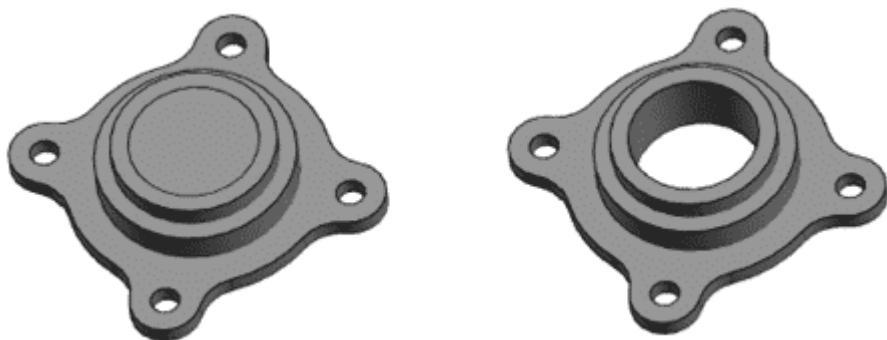


Figure.10.1.8 Step-12

Step 13

Type F on the command line and press enter to start fillet command, type R on the command line and enter a radius of 1.5 units for the fillet. Now select the edge between the flat piece and the biggest cylinder as shown in the image below and press enter twice to exit the command.



Figure.10.1.9 Step-13

10.2. 3D Commands

Below is a list of commonly used AutoCAD commands that are used when working with 3D solids.

1. **POLYLINE (PL)** – The POLYLINE command will allow you to create a 2D polyline. When working with the Solid Model Tools, it is crucial to close a polyline when trying to make a shape. Not closing a polyline will result in a mesh object being created. Mesh objects are not recognized by the Solid Model Tools.
2. **EXTRUDE (EXT)** – The EXTRUDE command will extrude a 2D object into a 3D object. When using the EXTRUDE command, the original 2D object will be removed from the drawing.
3. **PRESSPULL (PRESS)** – The PRESSPULL command will extrude a 2D object into a 3D object, or extend a 3D surface. When using the PRESSPULL command with a 2D object, the 2D object will remain in the drawing.
4. **BOX** – The BOX command will allow you to create a 3D box by selecting 3 points in the X, Y, and Z axes.
5. **3DMOVE (3M)** – The 3DMOVE command will allow you to move an object in either the X, Y, or Z-axis.
6. **3DROTATE (3R)** – The 3DROTATE command will allow you to rotate an object about the X, Y, or Z axes.

7. **3DPOLYLINE (3DPOLY)** – The 3DPOLYLINE command will allow you to create a polyline with points that can exist in the X, Y, and Z axes.
8. **UNION (UNI)** – The UNION command will allow you to join separate 3D objects into one.
9. **SUBTRACT (SU)** – The SUBTRACT command will allow you to subtract 3D objects from another 3D object.
10. **SLICE (SL)** – The SLICE command will allow you to create a joint through a 3D solid.

10.3. Creating a Building in 3D

1. Open AutoCAD and create the outline of the house's exterior: Click the "Home" tab, then click the "Draw" panel's "Rectangle" button.

Start by setting your units to architectural (DDUNITS).

Remember to create new layers for each type of objects you will draw (windows, doors, walls, roof, etc). Also use the "Render > Visual Styles > Realistic" option when adding materials. Start with layout/floorplan. Thickness of wall, place of windows and outer doors is enough accurate.

Now draw the bases of the walls using the dimensions are shown below. You don't need to dimension it. Optionally, you can use the (new in AutoCAD 2007) POLYSOLID command.

2. Now you will create regions out of all your wall lines. Click near the upper-left corner of the drawing window and drag toward the lower-right corner. Release the mouse to complete the rectangle.

3. Define the top views of walls, beginning with clicking the rectangle tool again. Click and drag inside the house outline to define walls that separate the house's rooms. If you're not sure how you want to define your rooms, draw a single rectangle that divides the house outline through its horizontal centre. Ensure the rectangle's length extends the full width of the house's outline, and that its width is as small as possible.

4. Draw the floor plan for furnishings. Once you've defined the borders of each room, apply the rectangle tool to define the largest furnishings inside each room. For example, draw rectangles for the beds, sofas and dressers. To size these objects correctly, relate their largest dimensions to the room's largest dimension. For example, a plausible length for a bed will be somewhere between one-fourth and one-half the length of the room. Size the bed's width similarly, except base it on the bed's length, not the room. You can also get sizing ideas by using one of the Web applets listed in this Resources section.

5. Add rectangles for each remaining item you want in the house, working from largest to smallest. Begin visualizing your home in three dimensions: Enter "Orbit" at the command

prompt at the bottom of the screen. Click and drag slightly up and left. This will move your viewpoint to one displaying the three dimensions of your house, once you make the home 3-D in the next step.

6. Click one of your house's walls to select it, then enter "Extrude" at the command line. This command expands 2-D surfaces into 3-D objects. Size the wall to a height you desire, then click to end the extrusion. Repeat this step for each rectangle you drew, to make the house fully 3-D.

7. Subtract the frame holes (windows and doors)

8. Create a door layer (or make it active if you already have one) and draw a rectangle in the door opening that is 3"x 3' - put it in the middle of the door opening. Extrude it 6'8".

9. If you haven't saved your drawing yet, now would be a good time. Now you're going to add some windows. This will be done using a similar process as the door. You will create openings, then add the window. Create 2 rectangles in the position shown below. EXTRUDE the window 36 inches. Then move them up 3'8" in the Z axis.

10. Remember to use layers

11. For rendering, use commands: materials and assign material

12. Set sun and sky properties.

10.4. AutoCAD Keyboard Shortcuts

trl+G	Toggle Grid
Ctrl+E	Cycle isometric planes
Ctrl+F	Toggle running object snaps
Ctrl+H	Toggle Pick Style
Ctrl+Shift+H	Toggle Hide pallets
Ctrl+I	Toggle Coords
Ctrl+Shift+I	Toggle Infer Constraints

Ctrl+0 (zero)	Clean Screen
Ctrl+1	Property Palette
Ctrl+2	Design Center Palette
Ctrl+3	Tool Palette
Ctrl+4	Sheet Set Palette
Ctrl+6	DBConnect Manager
Ctrl+7	Markup Set Manager Palette
Ctrl+8	Quick Calc
Ctrl+9	Command Line
Ctrl+N	New Drawing
Ctrl+S	Save drawing
Ctrl+O	Open drawing
Ctrl+P	Plot dialog box
Ctrl+Tab	Switch to next
Ctrl+Shift+Tab	Switch to previous drawing
Ctrl+Page Up	Switch to previous tab in current drawing
Ctrl+Page Down	Switch to next tab in current drawing
Ctrl+Q	Exit
Ctrl+Shift+S	Save drawing as

Toggle Drawing Mode

F1	Display Help
F2	Toggle text screen
F3	Toggle object snap mode
F4	Toggle 3DOSnap
F5	Toggle Isoplane
F6	Toggle Dynamic UCS
F7	Toggle grid mode
F8	Toggle ortho mode
F9	Toggle snap mode
F10	Toggle polar mode
F11	Toggle object snap tracking
F12	Toggle dynamic input mode
Ctrl+A	Select all objects
Ctrl+C	Copy object
Ctrl+K	Insert hyperlink
Ctrl+X	Cut object
Ctrl+V	Paste object
Ctrl+Shift+C	Copy to clipboard with base point

Ctrl+Shift+V	Paste data as block
Ctrl+Z	Undo last action
Ctrl+Y	Redo last action
Ctrl+[Cancel current command (or ctrl+\)
ESC	Cancel current command
A	ARC / Creates an arc
ADC	ADCENTER / Manages and inserts content such as blocks, xrefs, and hatch patterns
AA	AREA / Calculates the area and perimeter of objects or of defined areas
AL	ALIGN / Aligns objects with other objects in 2D and 3D
AP	APPLOAD / Load Application
AR	ARRAY / Creates multiple copies of objects in a pattern
ARR	ACTRECORD / Starts the Action Recorder
ARM	ACTUSERMESSAGE / Inserts a user message into an action macro
ARU	ACTUSERINPUT / Pauses for user input in an action macro
ARS	ACTSTOP / Stops the Action Recorder and provides the option of saving the recorded actions to an action macro file
ATI	ATTIPEDIT / Changes the textual content of an attribute within a block

ATT	ATTDEF / Redefines a block and updates associated attributes
ATE	ATTEDIT / Changes attribute information in a block
B	
B	BLOCK / Creates a block definition from selected objects
BC	BCLOSE / Closes the Block Editor
BE	BEDIT / Opens the block definition in the Block Editor
BH	HATCH / Fills an enclosed area or selected objects with a hatch pattern, solid fill, or gradient fill
BO	BOUNDARY / Creates a region or a polyline from an enclosed area
BR	BREAK / Breaks the selected object between two points
BS	BSAVE / Saves the current block definition
BVS	BVSTATE / Creates, sets, or deletes a visibility state in a dynamic block
C	
C	CIRCLE / Creates a circle
CAM	CAMERA / Sets a camera and target location to create and save a 3D perspective view of objects
CBAR	CONSTRAINTBAR / A toolbar-like UI element that displays the available geometric constraints on an object
CH	PROPERTIES / Controls properties of existing objects

CHA	CHAMFER / Bevels the edges of objects
CHK	CHECKSTANDARDS / Checks the current drawing for standards violations
CLI	COMMANDLINE / Displays the Command Line window
COL	COLOR / Sets the color for new objects
CO	COPY / Copies objects a specified distance in a specified direction
CT	CTABLESTYLE / Sets the name of the current table style
CUBE	NAVVCUBE / Controls the visibility and display properties of the ViewCube tool
CYL	CYLINDER / Creates a 3D solid cylinder

D, E, F**D**

D	DIMSTYLE / Creates and modifies dimension styles
DAN	DIMANGULAR / Creates an angular dimension
DAR	DIMARC / Creates an arc length dimension
DBA	DIMBASELINE / Creates a linear, angular, or ordinate dimension from the baseline of the previous or selected dimension
DBC	DBCONNECT / Provides an interface to external database tables
DCE	DIMCENTER / Creates the center mark or the centerlines of circles and arcs

DCO	DIMCONTINUE / Creates a dimension that starts from an extension line of a previously created dimension
DCON	DIMCONSTRAINT / Applies dimensional constraints to selected objects or points on objects
DDA	DIMDISASSOCIATE / Removes associativity from selected dimensions
DDI	DIMDIAMETER / Creates a diameter dimension for a circle or an arc
DED	DIMEDIT / Edits dimension text and extension lines
DI	DIST / Measures the distance and angle between two points
DIV	DIVIDE / Creates evenly spaced point objects or blocks along the length or perimeter of an object
DJL	DIMJOGLINE / Adds or removes a jog line on a linear or aligned dimension
DJO	DIMJOGGED / Creates jogged dimensions for circles and arcs
DL	DATALINK / The Data Link dialog box is displayed
DLU	DATALINKUPDATE / Updates data to or from an established external data link
DO	DONUT / Creates a filled circle or a wide ring
DOR	DIMORDINATE / Creates ordinate dimensions
DOV	DIM OVERRIDE / Controls overrides of system variables used in selected dimensions

DR	DRAWORDER / Changes the draw order of images and other objects
DRA	DIMRADIUS / Creates a radius dimension for a circle or an arc
DRE	DIMREASSOCIATE / Associates or re-associates selected dimensions to objects or points on objects
DRM	DRAWINGRECOVERY / Displays a list of drawing files that can be recovered after a program or system failure
DS	DSETTINGS / Sets grid and snap, polar and object snap tracking, object snap modes, Dynamic Input, and Quick Properties
DT	TEXT / Creates a single-line text object
DV	DVIEW / Defines parallel projection or perspective views by using a camera and target
DX	DATAEXTRACTION / Extracts drawing data and merges data from an external source to a data extraction table or external file
E	
E	ERASE / Removes objects from a drawing
ED	DDEDIT / Edits single-line text, dimension text, attribute definitions, and feature control frames
EL	ELLIPSE / Creates an ellipse or an elliptical arc
EPDF	EXPORTPDF / Exports drawing to PDF
ER	EXTERNALREFERENCES / Opens the External References palette

EX	EXTEND / Extends objects to meet the edges of other objects
EXIT	QUIT / Exits the program
EXP	EXPORT / Saves the objects in a drawing to a different file format
EXT	EXTRUDE / Extends the dimensions of a 2D object or 3D face into 3D space

F

F	FILLET / Rounds and fillets the edges of objects
FI	FILTER / Creates a list of requirements that an object must meet to be included in a selection set
FS	FSMODE / Creates a selection set of all objects that touch the selected object
FSHOT	FLATSHOT / Creates a 2D representation of all 3D objects based on the current view

G, H, I

G

G	GROUP / Creates and manages saved sets of objects called groups
GCON	GEOCONSTRAINT / Applies or persists geometric relationships between objects or points on objects
GD	GRADIENT / Fills an enclosed area or selected objects with a gradient fill
GEO	GEOGRAPHICLOCATION / Specifies the geographic location information for a drawing file

H

H	HATCH / Fills an enclosed area or selected objects with a hatch pattern, solid fill, or gradient fill
HE	HATCHEDIT / Modifies an existing hatch or fill
HI	HIDE / Regenerates a 3D wireframe model with hidden lines suppressed
I	
I	INSERT / Inserts a block or drawing into the current drawing
IAD	IMAGEADJUST / Controls the image display of the brightness, contrast, and fade values of images
IAT	IMAGEATTACH / Inserts a reference to an image file
ICL	IMAGECLIP / Crops the display of a selected image to a specified boundary
ID	ID / Displays the UCS coordinate values of a specified location
IM	IMAGE / Displays the External References palette
IMP	IMPORT / Imports files of different formats into the current drawing
IN	INTERSECT / Creates a 3D solid, surface, or 2D region from overlapping solids, surfaces, or regions
INF	INTERFERE / Creates a temporary 3D solid from the interferences between two sets of selected 3D solids
IO	INSERTOBJ / Inserts a linked or embedded object

J, K, L

J

J	JOIN / Joins similar objects to form a single, unbroken object
JOG	DIMJOGGED / Creates jogged dimensions for circles and arcs
K	
L	
L	LINE / Creates straight line segments
LA	LAYER / Manages layers and layer properties
LAS	LAYERSTATE / Saves, restores, and manages named layer states
LE	QLEADER / Creates a leader and leader annotation
LEN	LENGTHEN / Changes the length of objects and the included angle of arcs
LESS	MESHSMOOTHLESS / Decreases the level of smoothness for mesh objects by one level
LI	LIST / Displays property data for selected objects
LO	LAYOUT / Creates and modifies drawing layout tabs
LT	LINETYPE / Loads, sets, and modifies linetypes
LTS	LTSCALE / Changes the scale factor of linetypes for all objects in a drawing
LW	LWEIGHT / Sets the current linewidth, linewidth display options, and linewidth units
M, N, O	
M	
M	MOVE / Moves objects a specified distance in a specified direction

MA	MATCHPROP / Applies the properties of a selected object to other objects
ME	MEASURE / Joins similar objects to form a single, unbroken object
MEA	MEASUREGEOM / Measures the distance, radius, angle, area, and volume of selected objects or sequence of points
MI	MIRROR / Creates a mirrored copy of selected objects
ML	MLINE / Creates multiple parallel lines
MLA	MLEADERALIGN / Aligns and spaces selected multileader objects
MLC	MLEADERCOLLECT / Organizes selected multileaders that contain blocks into rows or columns, and displays the result with a single leader
MLD	MLEADER / Creates a multileader object
MLE	MLEADEREDIT / Adds leader lines to, or removes leader lines from, a multileader object
MLS	MLEADERSTYLE / Creates and modifies multileader styles
MO	PROPERTIES / Controls properties of existing objects
MORE	MESHSMOOTHMORE / Increases the level of smoothness for mesh objects by one level
MS	MSPACE / Switches from paper space to a model space viewport
MSM	MARKUP / Opens the Markup Set Manager
MT	MTEXT / Creates a multiline text object

MV	MVIEW / Creates and controls layout viewports
N	
NORTH	GEOGRAPHICLOCATION / Specifies the geographic location information for a drawing file
NSHOT	NEWSHOT / Creates a named view with motion that is played back when viewed with ShowMotion
NVIEW	NEWVIEW / Creates a named view with no motion
O	
O	OFFSET / Creates concentric circles, parallel lines, and parallel curves
OFFSETSRF	SURFOFFSET/ Creates a parallel surface or solid by setting an offset distance from a surface
OP	OPTIONS / Customizes the program settings
ORBIT / 3DO	3DORBIT / Rotates the view in 3D space, but constrained to horizontal and vertical orbit only
OS	OSNAP / Sets running object snap modes
P, Q, R	
P	
P	PAN / Adds a parameter with grips to a dynamic block definition
PA	PASTESPEC / Pastes objects from the Clipboard into the current drawing and controls the format of the data
PAR	PARAMETERS / Controls the associative parameters used in the drawing
PARAM	BPARAMETER / Adds a parameter with grips to a dynamic block

	definition
PATCH	SURFPATCH / Creates a new surface by fitting a cap over a surface edge that forms a closed loop
PCATTACH	POINTCLOUDATTACH / Inserts an indexed point cloud file into the current drawing
PE	PEDIT / Edits polylines and 3D polygon meshes
PL	PLINE / Creates a 2D polyline
PO	POINT / Creates a point object
POFF	HIDEPAlettes / Hides currently displayed palettes (including the command line)
POL	POLYGON / Creates an equilateral closed polyline
PON	SHOWPAlettes / Restores the display of hidden palettes
PR	PROPERTIES / Displays Properties palette
PRE	PREVIEW / Displays the drawing as it will be plotted
PRINT	PLOT / Plots a drawing to a plotter, printer, or file
PS	PSPACE / Switches from a model space viewport to paper space
PSOLID	POLYSOLID / Creates a 3D wall-like polysolid
PU	PURGE / Removes unused items, such as block definitions and layers, from the drawing
PYR	PYRAMID / Creates a 3D solid pyramid

QC	QUICKCALC / Opens the QuickCalc calculator
QCUI	QUICKCUI / Displays the Customize User Interface Editor in a collapsed state
QP	QUICKPROPERTIES / Displays open drawings and layouts in a drawing in preview images
Q	QSAVE / Saves the current drawing
QVD	QVDRAWING / Displays open drawings and layouts in a drawing using preview images
QVDC	QVDRAWINGCLOSE / Closes preview images of open drawings and layouts in a drawing
QVL	QVLAYOUT / Displays preview images of model space and layouts in a drawing
QVLC	QVLAYOUTCLOSE / Closes preview images of model space and layouts in the current drawing

R	REDRAW / Refreshes the display in the current viewport
RA	REDRAWALL / Refreshes the display in all viewports
RC	RENDERCROP / Renders a specified rectangular area, called a crop window, within a viewport
RE	REGEN / Regenerates the entire drawing from the current viewport
REA	REGENALL / Regenerates the drawing and refreshes all viewports

REC	RECTANG / Creates a rectangular polyline
REG	REGION / Converts an object that encloses an area into a region object
REN	RENAME / Changes the names assigned to items such as layers and dimension styles
REV	REVOLVE / Creates a 3D solid or surface by sweeping a 2D object around an axis
RO	ROTATE / Rotates objects around a base point
RP	RENDERPRESETS / Specifies render presets, reusable rendering parameters, for rendering an image
RR	RENDER / Creates a photorealistic or realistically shaded image of a 3D solid or surface model
RW	RENDERWIN / Displays the Render window without starting a rendering operation

S, T, U
S

S	STRETCH / Stretches objects crossed by a selection window or polygon
SC	SCALE / Enlarges or reduces selected objects, keeping the proportions of the object the same after scaling
SCR	SCRIPT / Executes a sequence of commands from a script file
SEC	SECTION / Uses the intersection of a plane and solids, surfaces, or mesh to create a region
SET	SETVAR / Lists or changes the values of system variables

SHA	SHADEMODE / Starts the VSCURRENT command
SL	SLICE / Creates new 3D solids and surfaces by slicing, or dividing, existing objects
SN	SNAP / Restricts cursor movement to specified intervals
SO	SOLID / Creates solid-filled triangles and quadrilaterals
SP	SPELL / Checks spelling in a drawing
SPE	SPLINEDIT / Edits a spline or spline-fit polyline
SPL	SPLINE / Creates a smooth curve that passes through or near specified points
SPLANE	SECTIONPLANE / Creates a section object that acts as a cutting plane through 3D objects
SPLAY	SEQUENCEPLAY / Plays named views in one category
SPLIT	MESHSPILT / Splits a mesh face into two faces
SSM	SHEETSET / Opens the Sheet Set Manager
ST	STYLE / Creates, modifies, or specifies text styles
STA	STANDARDS / Manages the association of standards files with drawings
SU	SUBTRACT / Combines selected 3D solids, surfaces, or 2D regions by subtraction
T	
T	MTEXT / Creates a multiline text object

TA	TEXTALIGN / Aligns multiple text objects vertically, horizontally, or obliquely
TB	TABLE / Creates an empty table object
TED	TEXTEdit / Edits a dimensional constraint, dimension, or text object
TH	THICKNESS / Sets the default 3D thickness property when creating 2D geometric objects
TI	TILEMODE / Controls whether paper space can be accessed
TOL	TOLERANCE / Creates geometric tolerances contained in a feature control frame
TOR	TORUS / Creates a donut-shaped 3D solid
TP	TOOLPALETTES / Opens the Tool Palettes window
TR	TRIM / Trims objects to meet the edges of other objects
TS	TABLESTYLE / Creates, modifies, or specifies table styles
U	
UC	UCSMAN / Manages defined user coordinate systems.
UN	UNITS / Controls coordinate and angle display formats and precision.
UNHIDE / UNISOLATE	UNISOLATEOBJECTS / Displays objects previously hidden with the ISOLATEOBJECTS or HIDEOBJECTS command.
UNI	UNION / Unions two solid or two region objects.

V	VIEW / Saves and restores named views, camera views, layout views, and preset views.
VGO	VIEWGO / Restores a named view.
VP	VPOINT / Sets the 3D viewing direction.
VPLAY	VIEWPLAY / Plays the animation associated to a named view.
VS	VSCURRENT / Sets the visual style in the current viewport.
VSM	VISUALSTYLES / Creates and modifies visual styles and applies a visual style to a viewport.
W	
W	WBLOCK / Writes objects or a block to a new drawing file.
WE	WEDGE / Creates a 3D solid wedge.
WHEEL	NAVSWHEEL / Displays a wheel that contains a collection of view navigation tools.
X	
X	EXPLODE / Breaks a compound object into its component objects.
XA	XATTACH / Inserts a DWG file as an external reference (xref).
XB	XBIND / Binds one or more definitions of named objects in an xref to the current drawing.
XC	XCLIP / Crops the display of a selected external reference or block reference to a specified boundary.
XL	XLINE / Creates a line of infinite length.

XR	XREF / Starts the EXTERNALREFERENCES command.
Y - Z	
Z	ZOOM / Increases or decreases the magnification of the view in the current viewport.
ZEBRA	ANALYSISZEBRA / Projects stripes onto a 3D model to analyze surface continuity.
ZIP	ETRANSMIT / Creates a Self-Extracting or Zipped Transmittal Package.

MULTIPLE CHOICE QUESTIONS

1-What are the Advantages of AutoCAD?

- a. Improve the quality of designs
- b. Increase the productivity of the designer
- c. Creates drawings with accuracy and quickly
- d. All of the above

2-A Polyline can be broken into individual lines and arcs using which of the following command?

- a. BREAK
- b. TRIM
- c. EXPLODE
- d. OVERKILL

3-What is the shortcut for zoom command?

- a.Z Command
- b. Rotate mouse wheel
- c. ZOOM Command
- d. All of the above

4-Shortcut for Trim command is,

- a. T
- b.TR
- c. TI
- d. X

5-An object can be obtained from a block by using,

- a. EXPLODE
- b. OVERKILL
- c. REDEFINE
- d. UNGROUP

6- Scrolling of mouse can perform which following action?

- a. Zoom in / zoom out
- b. pan & scan
- c. extents / all
- d.scale

7- Is there any difference between Command Plot and Print?

- a. plot command prints only big plans
- b. The plot command for CNC (CAM)
- c. No difference
- d. print command can print up to A3 size paper

8- To bring a particular area of the workspace in focus, what command should be used?

- a.Zoom Extents
- b. Zoom Window
- c. Zoom Dynamic
- d. Zoom All

9- A Boolean operation that is used to select interfering region between solids,

- a. Union
- b. intersect
- c. Subtract
- d. None of the above

10- The file extension that cannot be accessed by AutoCAD,

- a.dwg
- b.dxf
- c.doc
- d.dws

ANSWERS

Q.No.	Answer	Q.No.	Answer
1	d	6	c
2	c	7	c
3	d	8	b
4	b	9	b
5	a	10	c

SHORT QUESTIONS

- 1-write 05 AutoCAD keyboard shortcuts?
- 2-Define AutoCAD 3D?
- 3-What is the objective of Extrude command?
- 4-what is the objective of Polyline command?
- 5-Enlist Basic 3D commands of AutoCAD?
- 6-Define Extrude & Sweep Command?
- 7-Define Union & Subtract command?

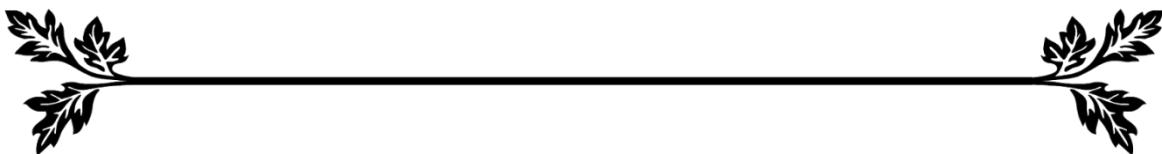
LONG QUESTIONS

- 1-Describe AutoCAD 3D commands?
- 2-Describe How to create 3D building in AutoCAD?
- 3-Describe any 10 AutoCAD keyboard shortcuts?
- 4-Describe How to create 3D Drawing?

Reference:

1. AutoCAD 2016 For Beginners, CADFolks
2. Mastering AutoCAD 2016 and AutoCAD LT 2016, George Omura and Brian C. Benton, Autodesk Official Press
3. AutoCAD 2016 Instructor, James Leach

CHEPTER-11



INTRODUCTION TO COMPUTERIZED EMBROIDERY

OBJECTIVES

11. Introduction to Computerized Embroidery
 - 11.1. Introduction to Toolbars
 - 11.2. View, Outline and Control Points
 - 11.3. Vectors & Images Sketching Designing
 - 11.4. Input Tools
 - 11.5. Pointer Tools
 - 11.6. Shaping Tools

11. Introduction to Computerized Embroidery

Computer embroidery, also known as machine embroidery, involves the machine stitching a design onto fabric.

Computerized embroidery refers to the process of creating embroidery designs using automated machines controlled by computer software. This technology has revolutionized the textile industry, making it easier and faster to produce high-quality embroidered designs on a range of fabrics and materials. With computerized embroidery, designs can be digitized and then programmed into the embroidery machine, which uses multiple needles and threads to stitch the design onto the fabric. This process is widely used in fashion, home décor, and promotional products industries. It allows for intricate and detailed designs to be produced with speed and accuracy, making it a popular choice for both small and large-scale embroidery projects.



Figure.11 Embroidery Machine

Introduction to Wilcom

Wilcom is a software company that specializes in embroidery and multi-decoration software solutions. Wilcom's software is used by embroidery businesses, apparel manufacturers, and digitizers to create and edit embroidery designs, manage production workflows, and automate the production of embroidered products. The company's flagship product, Wilcom EmbroideryStudio, is a powerful software suite that includes a range of tools for creating and editing embroidery designs, digitizing artwork, and managing production workflows.

Brief History:

A leading provider of innovative, quality embroidery solutions for over 40 years!

In 1979 Wilcom's founders shared a vision for automating the embroidery industry that has changed the way people create and produce embroidered goods.

A global organization headquartered in Sydney, Australia, Wilcom has led the industry with ongoing innovations that push the boundaries of creativity in personalized expressions and apparel decoration. With a reputation for excellence, Wilcom has become the world's favourite embroidery software for quality, productivity, ease-of-use and service.

Today, Wilcom is present in over 100 countries with products in over 12 languages Wilcom continues to enhance creativity in personalized expressions, by globally implementing best-of-breed solutions for textile impressions.

11.1. Introduction to Toolbars

When you open Embroidery Studio, it appears by default in Wilcom Workspace window with a new, blank design displayed. This mode allows you to create and edit embroidery objects using the embroidery digitizing toolset. The screen image below shows the more prominent toolbars in Embroidery Studio. Depending on your product level, you will have access to some or all of these options.

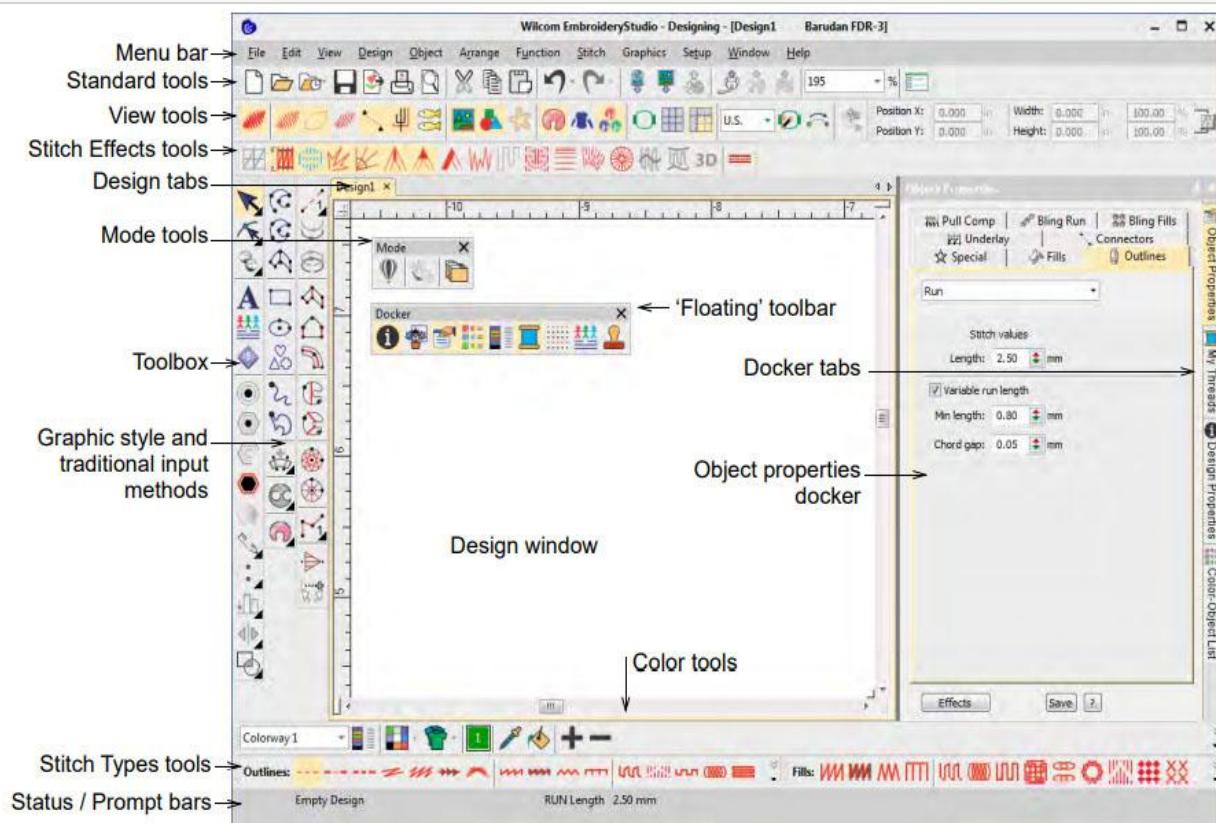


Figure. 11.1 Interface of wilcom

Use this mode when you want to create embroidery from digitizing 'backdrops'. Various types of image file can be loaded in EmbroideryStudio. **Wilcom Workspace** also offers a graphical representation of what the final embroidery will look like. Use **TrueView™** together with a background fabric to see how your design will look when stitched out. Some of the more prominent **Wilcom Workspace** interface elements include:

Element	Description
Menu bar	This contains the application menus such as File, Edit, View, etc.
Mode toolbar	This contains tools and icons which are visible in both Wilcom Workspace and CorelDRAW Graphics.
Standard toolbar	This contains commonly used tools and commands which are specific to and only visible in Wilcom Workspace.
View toolbar	This contains commands for viewing embroidery designs – e.g. as design outlines, by stitches, by machine functions, as they will stitch out on the fabric – either separately or in combination.
Stitch Types toolbars	This contains tools which determine the stitch types which can be applied to embroidery objects, including Satin, Tatami, Motif Fill, etc.
Stitch Effects toolbar	This contains tools for modifying or improving stitch quality, including applying automatic underlay to selected objects.
Toolboxes	Depending on the product model, there are up to three ‘toolboxes’ – Toolbox, Graphics Digitizing, and Traditional Digitizing. Between them, toolboxes contain all the embroidery digitizing/editing tools specific to and visible only in Wilcom Workspace.
Color toolbar	This contains the embroidery color palette which is specific to and visible only in Wilcom Workspace.
Status / Prompt bars	These contain current status information and prompts which are visible only in Wilcom Workspace. See below.
Docker	Wilcom Workspace includes ‘dockers’ – Object Properties, Color-Object List, Color Palette Editor, and others. These stay open as long as you need them.
Design Window	This contains the main work area where you create and edit embroidery objects as well as graphics objects when you switch to CorelDRAW Graphics.

11.2. View, Outline and Control Points

Views in Embroidery:

EmbroideryStudio provides many viewing modes to make it easier to work with your designs. Zoom in on an area to see more detail, view the design at actual size, or view a thumbnail of the whole design in a separate overview window. Pan the design to move it across the design window instead of scrolling, and quickly change between one view and the last.

The **View** toolbar commands for viewing embroidery designs – e.g. as design outlines, by stitches, by machine functions, as they will stitch out on the fabric – either separately or in combination.

The **View Toolbar** will become your best friend and is the most used toolbar in EmbroideryStudio. Alternate between ‘artistic’ and ‘technical’ views easily, or use a combination of views for extra detail.

Some Options of view

1. View Embroidery Components
2. View Graphical Components
3. Zoom and Pan Designs
4. Set-up Multiple Views
5. View Selected Objects and Color blocks
6. View Stitching Sequence
7. Change Background
8. View Design Repeats
9. View Design Information

11.2.1. View Embroidery Components

Use the Stitch View to see individual stitches and the Outline View to see shapes and objects. The last 3 viewing options are more technical and are used to see needle points, connectors, and functions, such as trims and tie-offs. These viewing options can be used individually or in combination.

The TrueView feature is the only option that works independently.

11.2.2. View Graphical Components

Another hugely popular Viewing option is the **Show Bitmap or Show Vector tools**. Once a design has been digitized, you can keep the graphics with the EMB file, only turned off. The graphic is still there, only not a distraction to the embroidery design. It is still visible in the Color-Object docker.

Image viewing options:



Use View > Show Bitmaps to show and hide bitmap images. Right-click to set image display options.



Use View > Show Vectors to show and hide vector graphics. Right-click to set image display options.



Use View > Dim Artwork to dim graphic backdrops to show stitches more clearly for digitizing.

You can dim bitmap image backdrops to make it easier to view stitches. You can also show colored vector graphics as outlines only.

To set image viewing options...

- Right-click either the **Show Bitmap** or **Show Vectors** icon. The **Options > View Graphics** dialog opens.

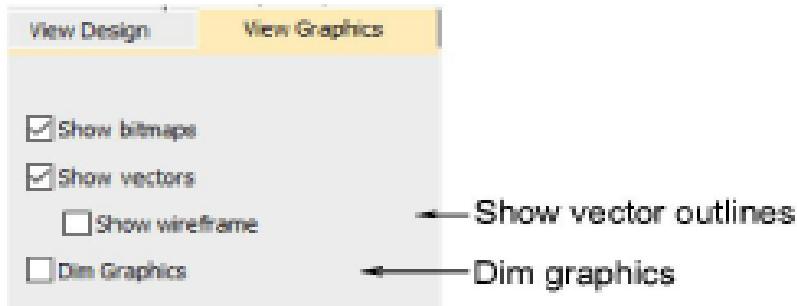


Figure. 11.2.2. Image viewing options

- To dim a bitmap image backdrop, select the **Dim Graphics** checkbox.



Figure. 11.2.2.1 dim graphic options

- To view a colored vector graphic as outlines, select the **Show Wireframe** checkbox.

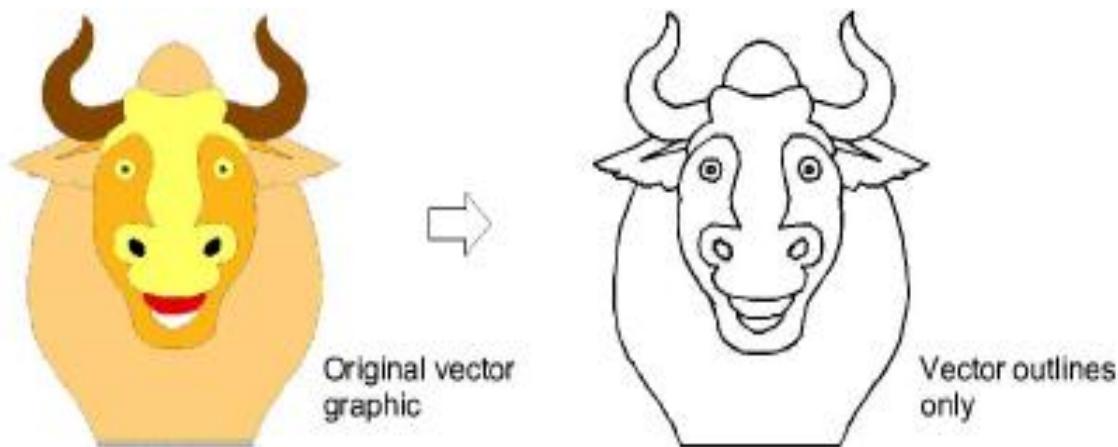


Figure. 11.2.2.2 show wireframe options

11.2.3. Zoom and Pan Designs

here are several ways to zoom and pan across the workspace. My favorite is the **shortcut 'B' to marque an area** to zoom in, and shortcut 'P' to pan. If you are working with large designs and constantly zooming and moving around the screen, it might be worth opening the Zoom toolbar and positioning it on the screen.

11.2.4. Set up multiple views

EmbroideryStudio gives you multiple views of the same design. It also allows you to switch between open designs by means of design tabs. This also makes it easy to copy/paste between designs, including drag and drop operations.

To set up multiple views...

- Use the **Window** menu commands to set up groups of tabs as preferred.

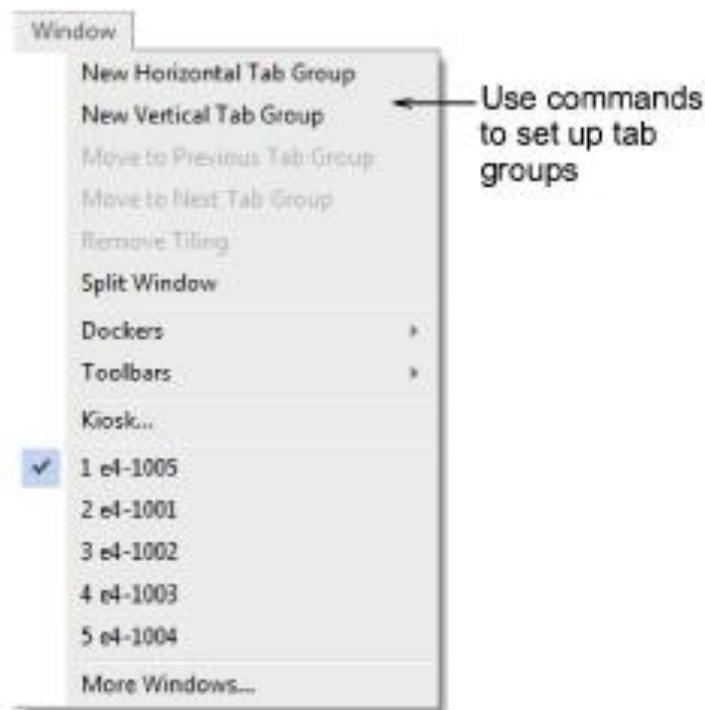


Figure. 11.2.4. Set up multiple views

- Set up vertical or horizontal tabbed groups.

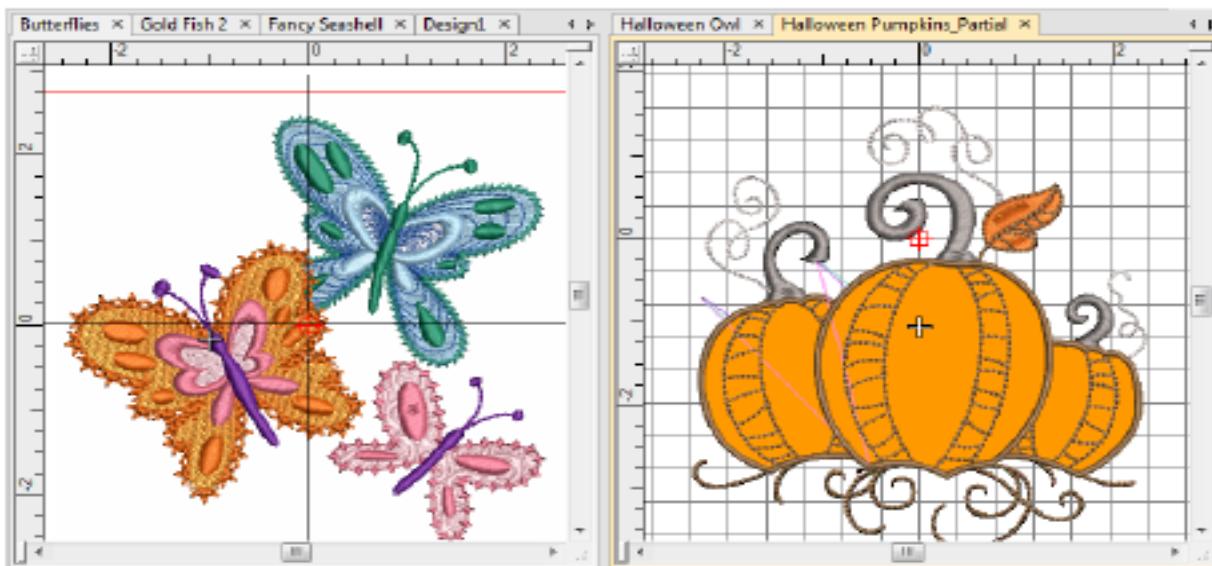


Figure. 11.2.4.1. vertical or horizontal

- To create multiple views of a single window, use the **Window > Split Window** command. Adjust view settings for each pane.



Figure. 11.2.4.2. multiple views of a single window

- Use the **Remove Tiling** command to return the design window to normal display mode.

Tip: After certain operations you may need to refresh the screen for a clearer display.

Select **View > Refresh Screen** or press **R**.

11.2.5. View Selected Objects and Colour blocks

There are many ways to isolate a color or selection, either on screen by holding down the color chip or selecting your chosen color in the **Color-Object list**. The Hide object command is another great way to remove the noise and focus only on what you need.

- ⇒ Select the objects you want to view and select SHIFT + S (all other objects will disappear from view). ESC and select SHIFT + S again to go back to standard view.
- ⇒ Right-click in the Color-Object list and select Unhide All

11.2.6. View Stitching Sequence

The *Travel toolbar* has been an old favorite. It will help you understand if the design will stitch out correctly on the machine. You can choose to view the stitch sequencing color-by-color, object-by-object, or by 1000 or fewer stitches at a time. Very quickly, you can ascertain if the

design will run efficiently. Travel forwards and/or backward as you need using right and left mouse clicks.

- ⇒ To see your design run from start to finish, use the Stitch Player instead and create a virtual stitch out on the screen.
- ⇒ The Travel toolbar does not work when your design is in TrueView mode.

11.2.7. Change Background

The **background color** can be changed for each colorway just as quickly as it is to change thread colors. The background color is essential to view the embroidery design on the correct color of the finished product or garment, allowing color mistakes to be picked up quickly. No one wants black words or letters on a black garment. There is also an option to add fabric texture to the background for a more realistic effect. The background color or product information is always with the unique colorway.

The background color, threads, and design information are saved with the EMB file.

11.2.8. View Design Repeats

The Show Repeats display is essential for designing a massive saree fabric or smaller repeating objects. The repeating designs can be changed on the fly, with each repeat showing the change. Easily toggle on and off while digitizing.

11.2.9. View Design Information

All the information you have saved with the design file is available and can be printed with the embroidery design for your production team. The design size, color sequence, thread colors, and stitch count are saved in the **Design Information docker**.

11.3. Vectors & Images Sketching Designing

11.3.1. Vector:

Vector files are made of lines, points, and curves that can be resized without loss of image quality and are easily altered. Vectors refer to mathematical shapes created using lines and curves, which are used to create precise designs that can be easily scaled and edited. In Wilcom, you can use the vector tools to create shapes such as rectangles, circles, and polygons, or to trace images to create a vector version of the design.

Create vectors



Use Graphics Digitizing > Digitize Open Shape to digitize open shapes. Press <Ctrl> to constrain.



Use Graphics Digitizing > Digitize Closed Shape to digitize closed shapes. Press <Ctrl> to constrain.



Use Graphics Digitizing > Ellipse to digitize ellipse or circle embroidery objects.



Use Graphics Digitizing > Rectangle to digitize rectangle or square embroidery objects. Press <Ctrl> to constrain.



Use Graphics Digitizing > Basic Shapes to digitize basic shapes. Press <Ctrl> to maintain aspect ratio. Press <Shift> to center at the first point.



Use Outline Stitch Types > Vector Outline to create vector outlines with no stitch properties applying.



Use Fill Stitch Types > Vector Fill to create vector fills with no stitch properties applying.

Use the Graphics Digitizing tools to create vector objects directly in EmbroideryStudio. Digitizing vector outlines and fills is like digitizing any other objects except that they have no stitch properties applying.

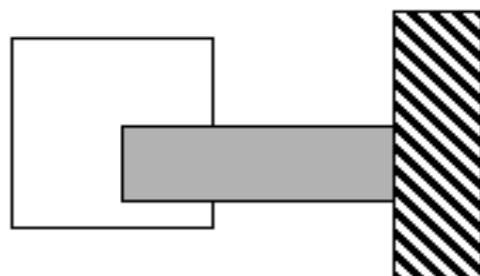
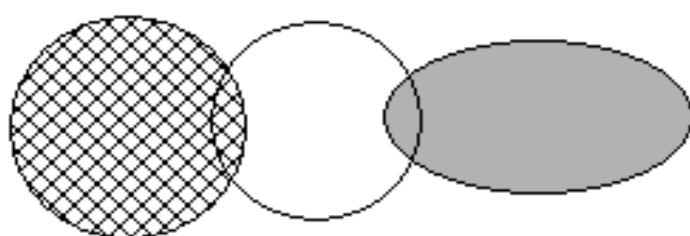


Figure. 11.3.1. Vector

To create vectors...

- Select Vector Outline or Vector Fill as your stitch type.
- Draw straight lines in your design using either Digitize Open Shape or Digitize Closed Shape digitizing tools. Enter start and end points. To constrain the line vertically, horizontally or in 15° angles, press Ctrl as you mark the end point.

- Draw lines of any shape using the same tools. Enter reference points to create the shape you want – left-click for corner points, right-click for curve points.

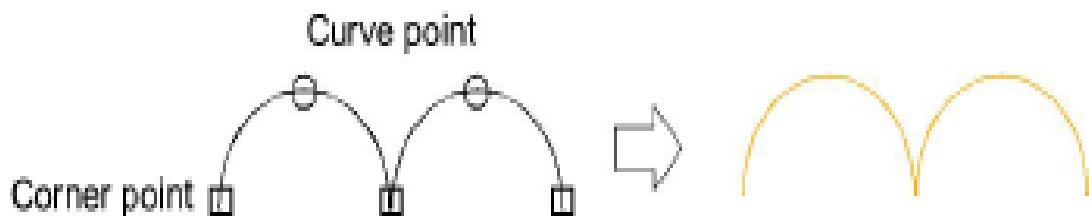


Figure. 11.3.1.1 reference points

- When you create closed shapes with the Digitize Closed Shape drawing tool, press Enter to close the shape.

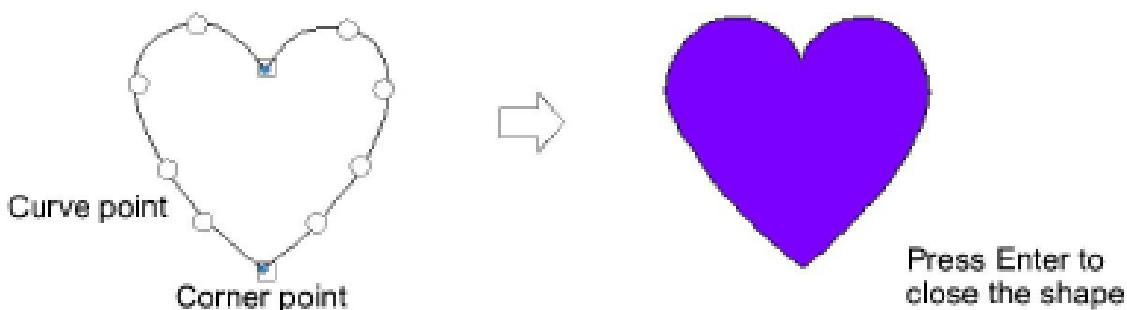


Figure. 11.3.1.2 to close shapes

- Draw rectangles and squares using the Rectangle tool. To draw a square, hold down Ctrl as you move the pointer.



Figure. 11.3.1.3 using rectangle tool

- Draw circles and ellipses using the Ellipse tool.
 - To draw a perfect circle, press Enter.
 - To draw an ellipse, move the pointer again, then mark a second radius point when the outline is the required size. Press Enter.

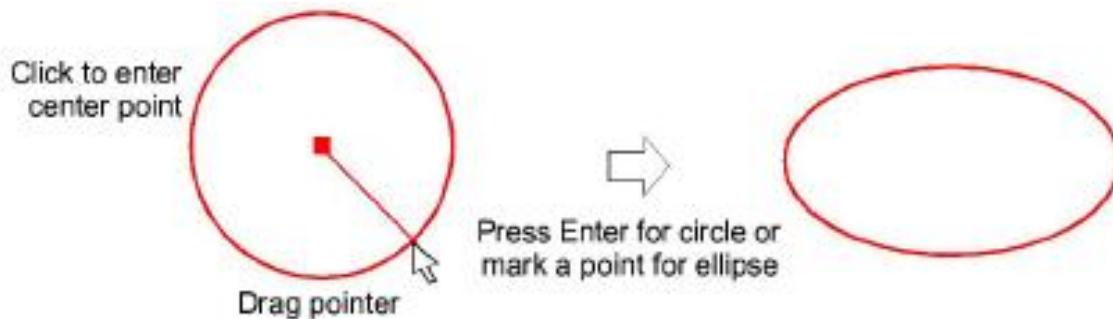


Figure. 11.3.1.4 using circle tool

- Press Enter to close a shape.

11.3.2. Image Sketching:

Images sketching refers to the process of converting a raster image (a picture made up of pixels) into a vector design. This is done by tracing the image using the vector tools, creating a clean and precise version of the original image that can be easily embroidered.

Wilcom offers several methods for creating Vectors & Images Sketching designs, including:

1. **Manual vector drawing:** This involves using the vector drawing tools in Wilcom to create designs from scratch. You can draw shapes such as lines, curves, and polygons to create intricate designs.



Figure. 11.3.2. Image Sketching

2. **Auto-tracing:** This method involves importing a raster image into Wilcom and using the auto-tracing feature to convert the image into a vector design. Wilcom uses advanced algorithms to trace the image and create a clean and precise vector version of the design.
3. **Manual tracing:** This method involves importing a raster image into Wilcom and manually tracing the image using the vector tools. This allows you to create a more customized vector design that closely matches the original image.
4. **Bitmap editing:** This method involves editing a bitmap image in Wilcom to create a custom design. You can use the bitmap editing tools to crop, resize, and adjust the colors of the image before converting it into a vector design.

Digitizing with Bitmaps

EmbroideryStudio supports the automatic and semi-automatic digitizing of both bitmap images and vector graphics. The quality of the resulting designs greatly depends on the type and quality of the original artwork. Generally speaking, vector graphics preserve the picture quality when resized, whereas bitmap images cause problems of pixelation and image degradation when enlarged or scaled down. You can insert or paste third-party vector graphics such as clipart for use in embroidery designs. Alternatively, insert, paste or scan bitmap artwork for use as digitizing templates or 'backdrops'. In order to make bitmap images more suitable for automatic digitizing, EmbroideryStudio provides image processing capabilities.

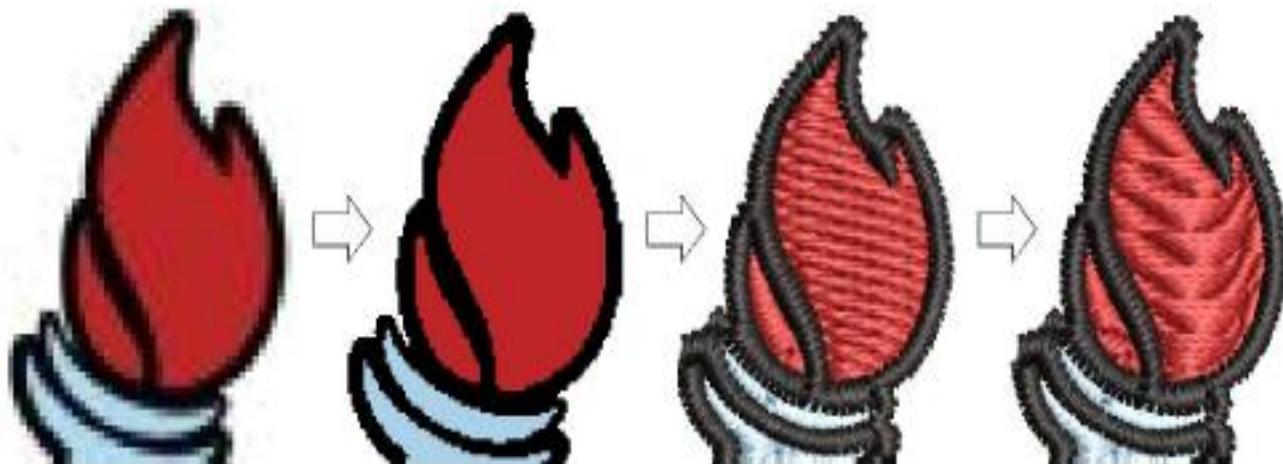


Figure. 11.3.2.1 Digitizing with Bitmaps

Automatic digitizing

Automatic digitizing Depending on your product level, Embroidery Studio offers a variety of complementary tools and techniques for automatically digitizing suitably prepared artwork.

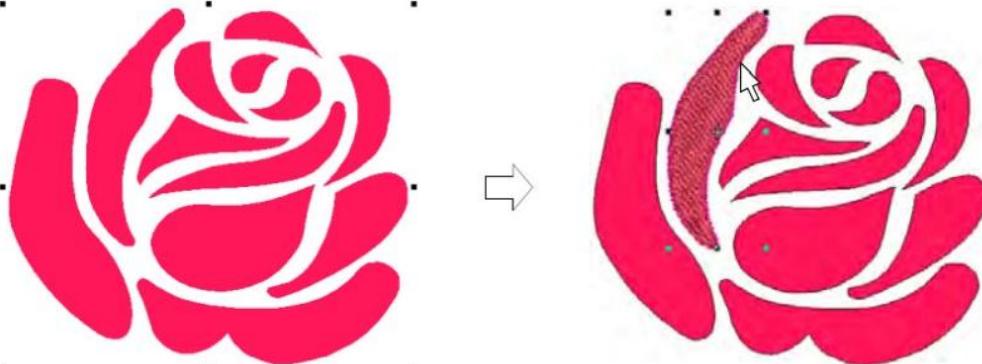


Figure. 11.3.2.2 Automatic Digitizing

Auto-digitizing image shapes Auto-Digitizing tools provide everything necessary to digitize shapes in bitmap images and vector graphics automatically without using manual digitizing methods. See Auto-digitizing shapes for details

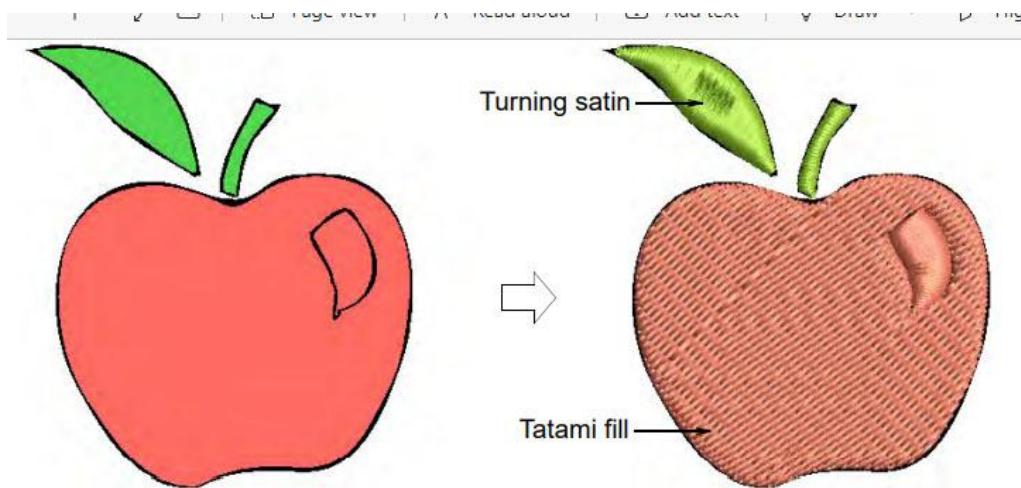


Figure. 11.3.2.3 Automatic Digitizing image shapes

Auto-digitizing entire images Smart Design automatically converts whole bitmap images to fully digitized embroidery. See Auto-digitizing images for details

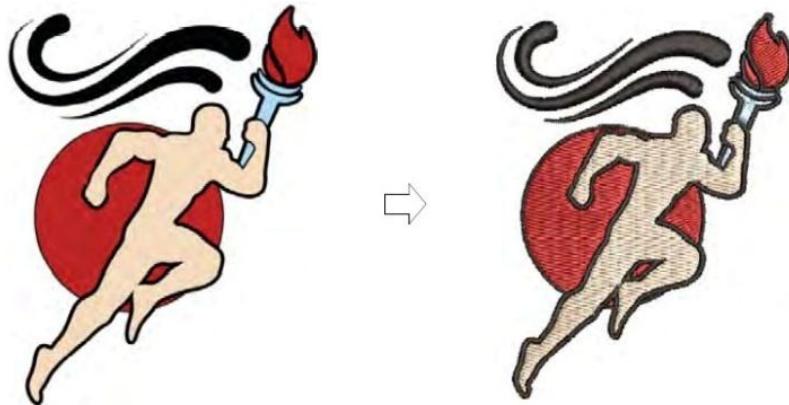


Figure. 11.3.2.4 Auto- Digitizing entire images

11.4. Input Tools:

The input tools in Wilcom refer to the various methods through which you can input your design or artwork into the software. Some of the common input tools in Wilcom include:

- 1) **File import:** You can import design files from other software such as Adobe Illustrator, CorelDRAW, or even other embroidery design software into Wilcom.
- 2) **Scanner:** You can scan images or artwork using a scanner and import them into Wilcom. The software can then convert the scanned image into a vector format that can be digitized and edited.
- 3) **Manual Digitizing:** Wilcom provides various tools to digitize designs manually. You can use tools such as nodes, lines, and curves to create the design. This method requires some skill and experience.
- 4) **Auto-digitizing:** Wilcom also offers an auto-digitizing feature, where the software converts raster images into vector format and creates embroidery stitches automatically.
- 5) **Tracing:** This tool allows you to trace designs using a pen tablet. You can draw the design directly onto the tablet, and Wilcom will convert it into a vector format that can be edited and digitized.

Input methods:

In the software, you build designs from basic shapes or 'embroidery objects. Embroidery objects have general properties such as color, size, position, and so on. They also have embroidery properties such as stitch type and density. Properties are defined as you digitize but they can be modified at any stage. The most important property for an embroidery object is its stitch type. Different stitch types are suited to different shapes.

The process of creating embroidery objects on screen is called '**digitizing'**. Embroidery digitizing tools are similar to drawing tools except that the end result are embroidery objects rather than vector objects.

11.5. Pointer Tools:

Pointer tools in Wilcom refer to a set of tools that allow you to manipulate the design elements with precision. Here are some of the most common pointer tools in Wilcom:

1. **Select tool:** This tool allows you to select and move design elements.
2. **Node edit tool:** This tool allows you to select and manipulate individual nodes within a design element.
3. **Freehand tool:** This tool allows you to draw freehand shapes and lines.
4. **Stitch angle tool:** This tool allows you to adjust the angle of the stitches in a design.
5. **Stitch edit tool:** This tool allows you to edit individual stitches within a design.
6. **Break apart tool:** This tool allows you to break apart a design element into individual objects.
7. **Combine tool:** This tool allows you to combine multiple objects into a single design element.
8. **Group tool:** This tool allows you to group multiple objects together for easier manipulation.

Using these pointer tools, you can create and edit embroidery designs with precision and ease.

11.6. Shaping Tools

When working with overlapping vector or embroidery objects, you can merge, trim or split them using the Shaping tools. All ‘shaped’ embroidery objects convert to Complex Fill or Complex Turning. Vector objects remain as vector objects unless combined with embroidery objects. You have the option of preserving source objects. You also have the option of adding overlaps to objects resulting from Flatten or Divide operations

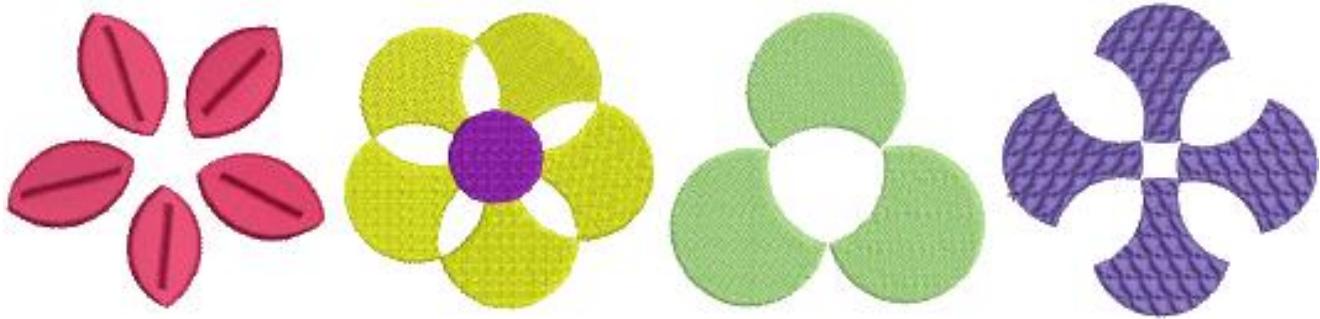
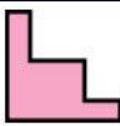
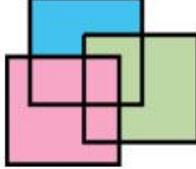
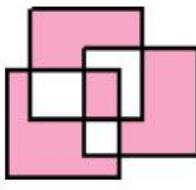


Figure. 11.6 Example

Shaping tools summary table

Source	Tool	Result	Description
	Weld		Selected objects are combined into a single object. The resulting object takes the properties – stitch color and type, etc – of the topmost object.
	Flatten		Only areas unique to each selected object are retained. All overlapping areas are removed.
	Intersect		Only areas common to all selected objects are retained. All non-overlapping areas are removed.
	Exclude		Areas where pairs of selected objects overlap are removed, starting from the topmost object.

	Front-Back		The topmost object is retained, but all of the areas overlapping with other selected objects are removed.
	Back-Front		The bottommost object is retained, but all of the areas overlapping with other selected objects are removed.
	Divide		The objects are split wherever overlaps occur and all hidden areas are removed.
	Combine		Areas where pairs of selected objects overlap are removed, starting from the topmost object. All resulting objects share the properties – stitch color and type, etc – of the topmost object.

Merge vector & embroidery objects



Use Shaping > Weld to merge overlapping objects into a single 'flattened' object.



Use Shaping > Combine to merge the properties of overlapping objects and trim overlapping areas.

Merge selected objects using the Weld or Combine tools.



Figure. 11.6.1 Merge objects

To merge vector and embroidery objects...

- Select vector or embroidery objects to shape.
- Use Weld to merge overlapping objects into a single 'flattened' object.

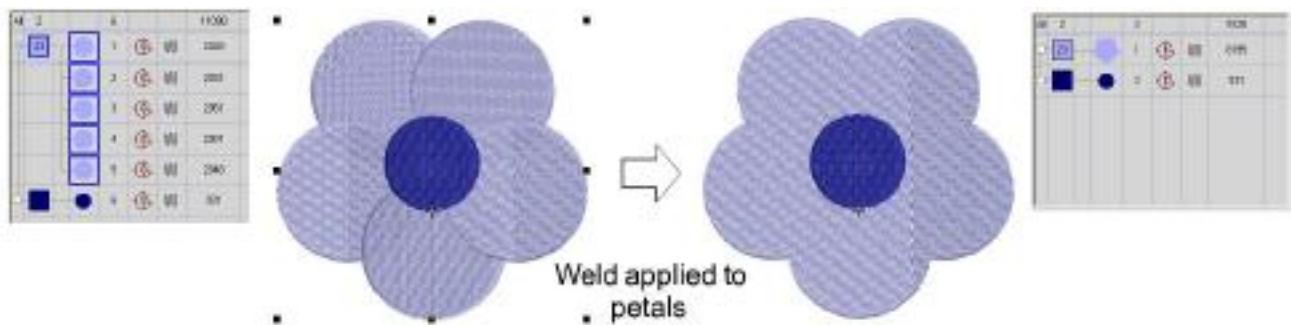


Figure. 11.6.2 Merge objects into a single 'flattened' object

- Make symmetrical shapes by digitizing one half, duplicating and reflecting, then welding the duplicate shapes.
-

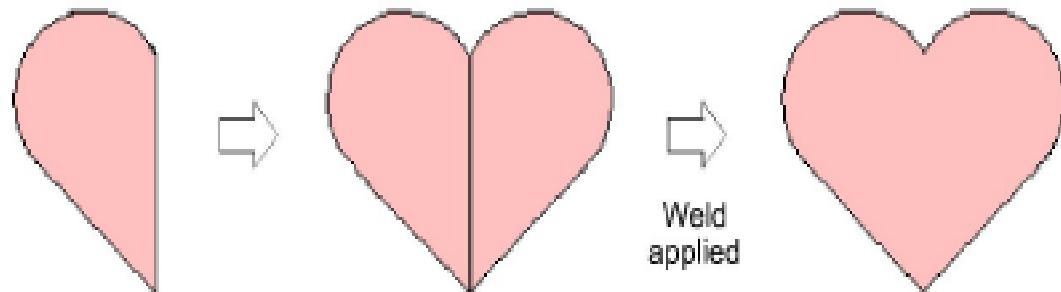


Figure. 11.6.3 welding the duplicate shapes.

Trim vector & embroidery objects



Use Shaping > Intersect to trim overlapping areas so that only those intersected by all selected objects remain.



Use Shaping > Exclude to trim overlapping objects and preserve their individual properties.



Use Shaping > Front-Back to trim overlapping objects so that only non-overlapped areas of the topmost object remain.



Use Shaping > Back-Front to trim overlapping objects so that only non-overlapped areas of the bottommost object remain.

Trim selected objects using the Intersect, Exclude, Front-Back or Back-Front tools.

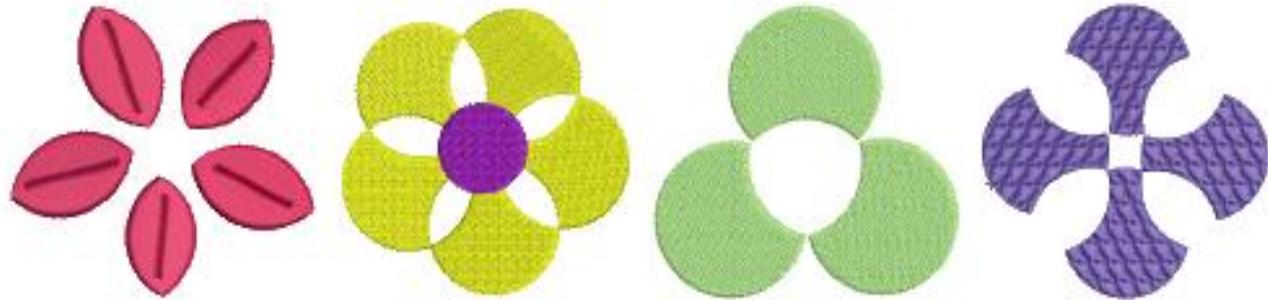


Figure. 11.6.4 Trim object

To trim vector and embroidery objects...

- Select vector or embroidery objects to shape.
- Use Intersect to trim overlapping areas so that only those intersected by all selected objects remain.

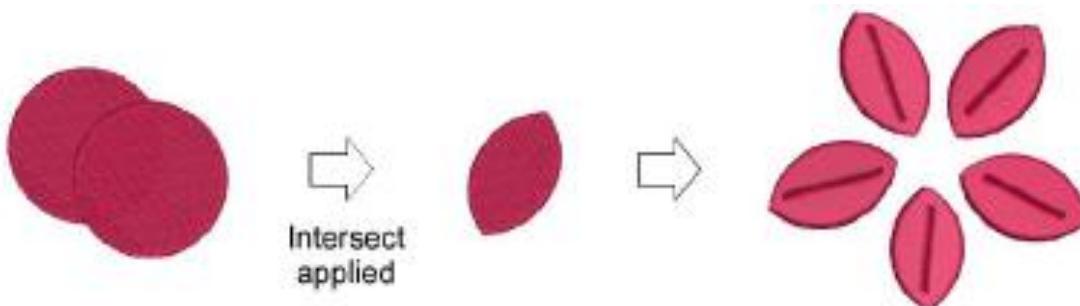


Figure. 11.6.5 Trim object

- Use Exclude to trim overlapping objects and preserve their individual properties. The result is similar to Combine except that object properties are not merged.

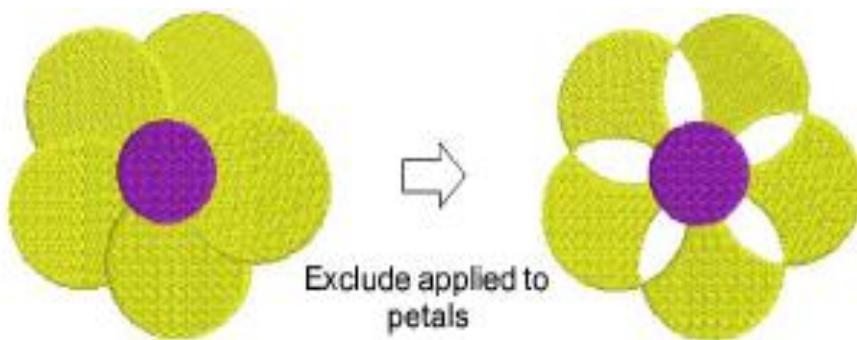


Figure. 11.6.6 Trim object

Tip: Use Exclude to cut holes in Complex Fill objects.

- Use Front-Back to trim overlapping objects so that only non-overlapped areas of the topmost object remain.

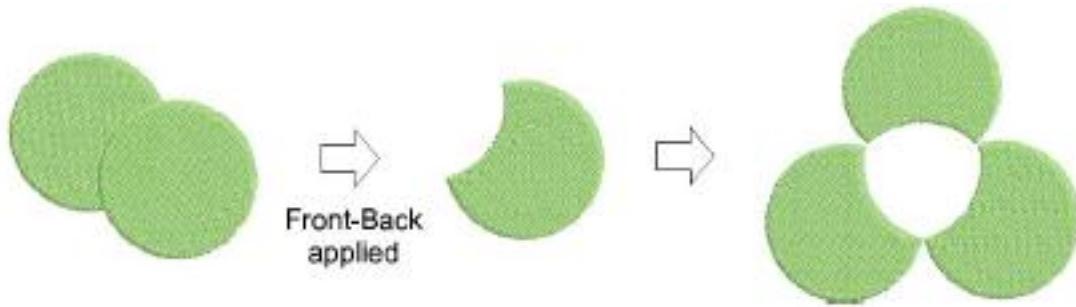


Figure. 11.6.7 Front-back Trim object

- Use Back-Front to trim overlapping objects so that only non-overlapped areas of the bottommost object remain.

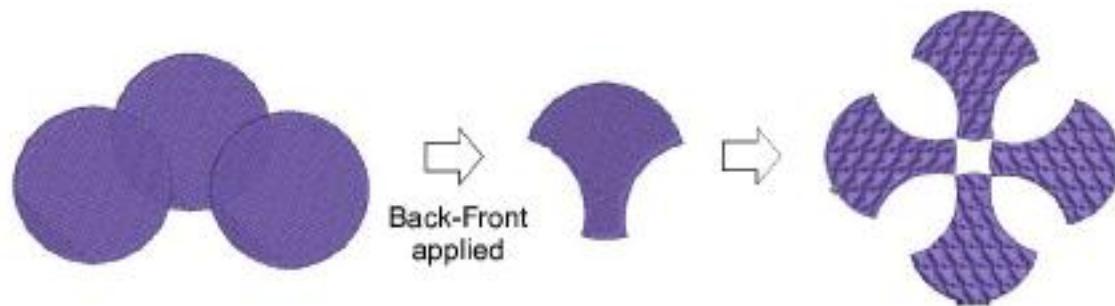


Figure. 11.6.8 Back-Front Trim object

Tip: Use the Remove Overlaps feature to maintain shapes but remove the underlying layer of stitching.

MULTIPLE CHOICE QUESTIONS

Q.1. What is View in Wilcom?

- a) A visual representation of a design
- b) A set of tools used to create a design
- c) An embroidery stitch type
- d) A type of embroidery machine

Q.2. What is Outline in Wilcom?

- a) A visual representation of a design
- b) A set of tools used to create a design
- c) The outermost edge of a design
- d) A type of embroidery machine

Q.3. What are Control Points in Wilcom?

- a) Points that define the shape of a design
- b) Points that control the stitch density of a design
- c) Points that control the thread color of a design
- d) Points that control the embroidery machine

4. What is the main difference between vectors and images in Wilcom software?

- a. Vectors are based on mathematical equations, while images are based on pixels.
- b. Vectors are easier to edit and manipulate than images.
- c. Images are higher in quality and resolution than vectors.
- d. Both vectors and images are the same thing in Wilcom software.

5. Which tool in Wilcom software is used for sketching and drawing vector designs?

- a) Freehand tool b) Stitch angle tool c) Node edit tool d) Group tool

6. What is the purpose of the Image tool in Wilcom software?

- a) To add text to images b) To create and edit images using vector tools.
- c) To apply effects and filters to images.
- d) To import and export images in various formats.

7. Which file format is commonly used for importing images into Wilcom software?

- a) .jpg b) .bmp c) .png d) .gif

8. Which of the following is true about vector graphics?

- a) They are resolution-dependent
- b) They are made up of pixels
- c) They can be scaled to any size without losing quality
- d) They are best for photographs and complex images

9. What is the purpose of the Auto-Digitizing tool in Wilcom?

- a) To create vector graphics from scratch
- b) To convert bitmap images into vectors
- c) To adjust the colors and effects of a design
- d) To add stitch types and densities to a design

10. What is the Bezier curve tool used for in Wilcom?

- a) To convert bitmap images into vectors

- b) To adjust the colors and effects of a design
- c) To create smooth curves in a vector graphic
- d) To add stitch types and densities to a design

11. What is the difference between the Direct Selection tool and the Group Selection tool in Wilcom?

- a) The Direct Selection tool selects individual objects, while the Group Selection tool selects entire groups of objects
- b) The Group Selection tool selects individual objects, while the Direct Selection tool selects entire groups of objects
- c) The Direct Selection tool is used for creating vector graphics, while the Group Selection tool is used for editing bitmap images
- d) The Group Selection tool is used for creating vector graphics, while the Direct Selection tool is used for editing bitmap images

12. What are some of the unique considerations when designing for embroidery in Wilcom?

- a) The need to use specific stitch types and densities
- b) The need to avoid complex shapes and gradients
- c) The need to consider the type of fabric and thread being used
- d) All of the above

13. Which input tool in Wilcom allows you to create designs using a digitizing tablet and pen?

- a) Auto-Digitizing
- b) Manual Digitizing
- c) Input Aids
- d) Quick Input

14. Which input tool in Wilcom allows you to create designs by scanning an existing image?

- a) Auto-Digitizing
- b) Manual Digitizing
- c) Input Aids
- d) Quick Input

15. Which input tool in Wilcom allows you to create designs by importing vector graphics?

- a) Auto-Digitizing
- b) Manual Digitizing
- c) Input Aids
- d) Quick Input

16. Which input tool in Wilcom allows you to create designs using pre-digitized artwork?

- a) Auto-Digitizing
- b) Manual Digitizing
- c) Input Aids
- d) Quick Input

17. Which input tool in Wilcom allows you to create designs using a combination of manual digitizing and automatic features?

- a) Auto-Digitizing
- b) Manual Digitizing
- c) Input Aids
- d) Quick Input

18. Which tool is used to select and move objects in Wilcom software?

- a) Shaping Tool
- b) Pointer Tool
- c) Zoom Tool
- d) Fill Tool

19. Which of the following is a feature of the Pointer Tool in Wilcom software?

- a) Scaling objects
- b) Creating objects
- c) Grouping objects
- d) Moving objects

20. Which tool is used to create and edit curves in Wilcom software?

- a) Shaping Tool
- b) Pointer Tool
- c) Zoom Tool
- d) Fill Tool

21. Which of the following is a feature of the Shaping Tool in Wilcom software?

- a) Resizing objects
- b) Rotating objects
- c) Creating objects
- d) Editing curves

22. Which tool is used to add or remove points on a curve in Wilcom software?

- a) Shaping Tool b) Pointer Tool c) Zoom Tool d) Fill Tool

23. Which tool is used to adjust the shape of an object by dragging its nodes or handles in Wilcom software?

- a) Shaping Tool b) Pointer Tool c) Zoom Tool d) Fill Tool

24. Which tool is used to crop an object or remove parts of it in Wilcom software?

- a) Shaping Tool b) Pointer Tool c) Zoom Tool d) Eraser Tool

25. Which tool is used to create basic shapes such as circles, squares, and triangles in Wilcom software?

- a) Shaping Tool b) Pointer Tool c) Zoom Tool d) Shape Tool

26. Which of the following is a feature of the Shape Tool in Wilcom software?

- a) Editing curves b) Moving objects c) Creating basic shapes

d) Adjusting node handles

27. Which tool is used to join two or more objects together in Wilcom software?

- a) Shaping Tool b) Pointer Tool c) Zoom Tool d) Combine Tool

MCQS ANSWERS

1	a	2	c	3	a	4	a
5	a	6	d	7	b	8	c
9	b	10	c	11	a	12	d
13	b	14	a	15	d	16	c
17	a	18	b	19	d	20	a
21	d	22	a	23	a	24	a
25	d	26	c	27	d		

SHORT QUESTION

1. Which Software do you use for Embroidery Digitizing?
2. What is a toolbar in Wilcom?
3. Which type of Artwork format do you accept?
4. How many types of toolbars are there in Wilcom?
5. What is View in Wilcom?
6. What are Control Points in Wilcom?

7. What is the difference between a bitmap image and a vector image in Wilcom software?
8. What is the difference between the Direct Selection tool and the Group Selection tool in Wilcom?
9. How does the Quick Input tool in Wilcom differ from manual digitizing?
10. Can you import artwork from other software programs into Wilcom using the Quick Input tool?
11. What is the Pointer Tool used for in Wilcom software?
12. Which tool is used to select and move objects in Wilcom software?
13. What is the Shaping Tool used for in Wilcom software?
14. Which tool is used to create and edit curves in Wilcom software?
15. What is the function of the handles in the Shaping Tool of Wilcom software?
16. Which tool is used to add or remove points on a curve in Wilcom software?
17. What is the purpose of the Crop Tool in Wilcom software?
18. Which tool is used to create basic shapes in Wilcom software?
19. What is the difference between the Shape Tool and the Shaping Tool in Wilcom software?
20. Which tool is used to join two or more objects together in Wilcom software?

LONG QUESTIONS

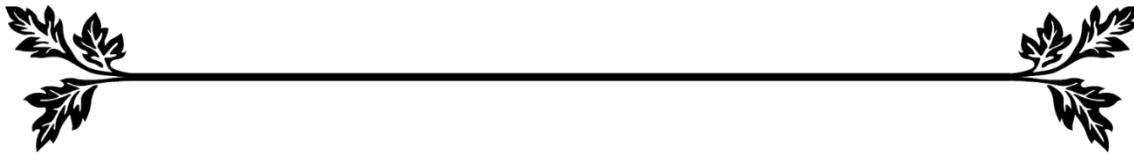
1. Explain some important features of Wilcom in detail.
2. What is the difference between vector graphics and bitmap images, and how does Wilcom handle them?
3. What are some of the key tools and techniques for creating vector graphics in Wilcom?
4. How can you convert bitmap images into vectors in Wilcom, and why might you want to do this?
5. What are some of the editing tools available in Wilcom for manipulating vector graphics and bitmap images?
6. How does Wilcom support the creation of embroidery-specific designs, and what are some of the unique considerations when designing for embroidery?
7. What is the difference between manual digitizing and auto-digitizing in Wilcom?
8. How can you use a scanning input tool in Wilcom to create embroidery designs?
9. What types of input aids are available in Wilcom and how do they help in the design process?
10. How can the Shaping Tool be used to resize and rotate objects in Wilcom software?
What are some tips for using this tool effectively?

11. Describe the function of the Pointer Tool in Wilcom software. How is it used to manipulate objects in the workspace?
12. Explain the purpose of the Shaping Tool in Wilcom software. How is it used to create and modify shapes?
13. How is the Shaping Tool used to edit curves in Wilcom software? Explain the process of adding or removing points on a curve.
14. What is the role of handles in the Shaping Tool of Wilcom software? How are they used to adjust the shape of an object?
15. Describe the process of using the Crop Tool in Wilcom software. How is it used to remove parts of an object or to crop an object to a specific size?

Reference:

1. Wilcom EmbroideryStudio e4 User Manual by Wilcome studio
2. <https://www.wilcom.com/help/e4/es/en/MainHelp>

CHAPTER-12



ADVANCED COMPUTER EMBROIDERY

OBJECTIVES

- 12. Advanced Computer Embroidery
 - 12.1. Duplicating Designs
 - 12.2. Stitches Types
 - 12.3. Travel
 - 12.4. Generate
 - 12.5. Automatic Digitizing
 - 12.6. Creating Embroidery Lettering

12.1. Duplicating Designs

Duplicate & clone objects

Objects can be duplicated rather than copied. When duplicated, the object is not copied to the clipboard. This preserves the current contents of the clipboard. They can also be ‘cloned’.



Use Select > Select Object to select and clone objects.

To duplicate or clone objects...

- Select an object or objects.
- Optionally, travel to the point in the stitching sequence where you want to place the duplicate. Otherwise, the duplicate object will be included at the end of the stitching sequence.
- It is handy to be able to ‘quick clone’ objects. Select the object and, holding down the right mouse button, drag to a new position. Hold down **Ctrl** to constrain movements horizontally or vertically.

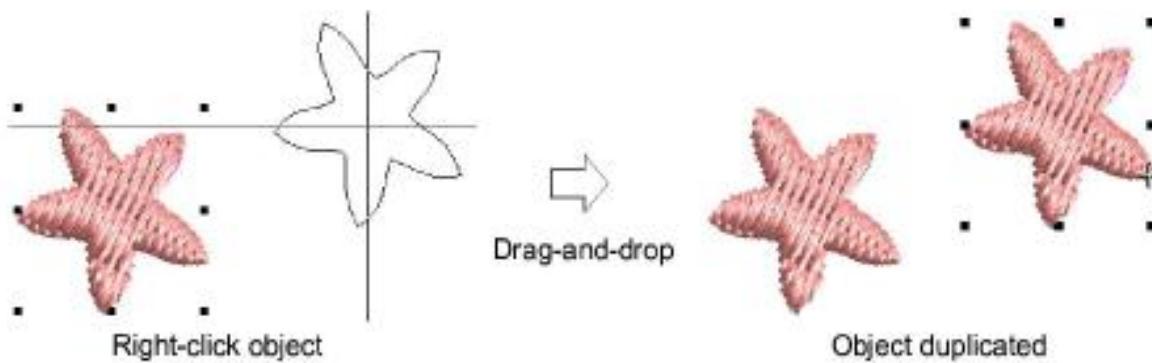


Figure 12.1. Duplicating Designs

- Optionally, select **Edit > Duplicate** or press **Ctrl+D** to keep duplicating the last cloned object. This means you can step-repeat duplicate objects.
- Optionally, press **Ctrl+Shift+D** to duplicate with a preset offset. Adjust this setting via the **Options > Edit** dialog.

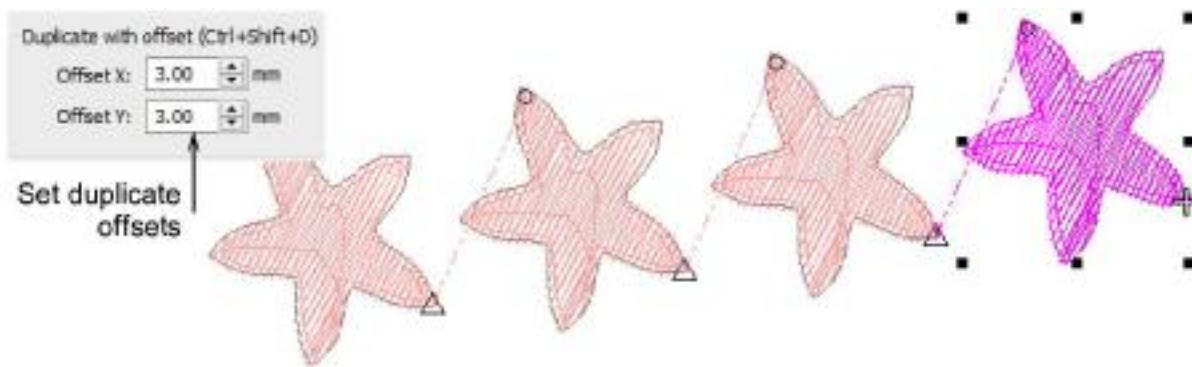


Figure.12.1.1 Duplicating offset

Tip: Clone objects to another window by the same method. To temporarily deactivate automatic scrolling, hold down the **Shift** key while dragging. Use the **Window > New Tab Group** commands to view multiple design tabs at the same time.

12.2. Stitches Types

All embroidery objects in EmbroideryStudio contain defining settings or properties. Some, such as size and position, are common to all objects, while others are specific to object type. The most important property of all is stitch type. The software uses object outlines and the associated stitch type to generate stitches. Whenever you reshape, transform or scale an object, stitches are regenerated according to current settings.



Figure. 12.2. Stitches

Stitch types divide broadly into two categories – outlines and fills. Different stitch types suit different shapes. Some stitch types are suitable for both outlines or fills. Others are dedicated to one or other purpose. A stitch type can be selected together with a digitizing method or

applied afterwards. Whenever you create an object from scratch, it takes the currently selected stitch type. Mainly four types of stiches are as under

12.2.1. Simple outlines

12.2.2. Satin stitching

12.2.3. Tatami stitching

12.2.4. Decorative embroidery

12.2.1. Simple outlines:

EmbroideryStudio provides tools for creating outline stitching of varying thicknesses and styles. They are typically used to add borders and pickout runs. There are tools for creating simple run stitching as well as a wide variety of decorative outlines. Outline stitch types can be interchanged.



Figure. 12.2.1. Simple outlines

Simple run stitching



Use Outline Stitch Types > Run to place a row of single run stitches along a digitized line. Right-click for settings.



Use Outline Stitch Types > Triple Run to place a triple row of run stitches along a digitized line. Right-click for settings.



Use Outline Stitch Types > Sculpture Run to create a thick-thin outline alternating single and triple stitches for a hand-stitched look.

Use **Run** to digitize lines of simple run stitching. Use **Triple Run** for emphasis. This stitch type is typically used for thicker borders and outlines. **Sculpture Run** creates thick-thin alternating

single and triple stitching for a hand-stitched look. Adjust stitch length, chord gap, stitch repetitions, and other settings via the **Object Properties** docker.



Figure. 12.2.1.1 Simple outlines

Tips for use...

- Both **Traditional Digitizing** and **Graphics Digitizing** toolbars contain tools for digitizing outlines. These tools place a row of stitching along a digitized line.
- EmbroideryStudio provides tools for automatically generating outlines.
- Use **Backtrack** and **Repeat** to reinforce outlines while specifying the direction of the stitching.
- Swap outline types at any time, including vector outlines. Vector objects of course have no stitch properties. Satin outline width can be controlled via object properties or using the **Reshape** tool.

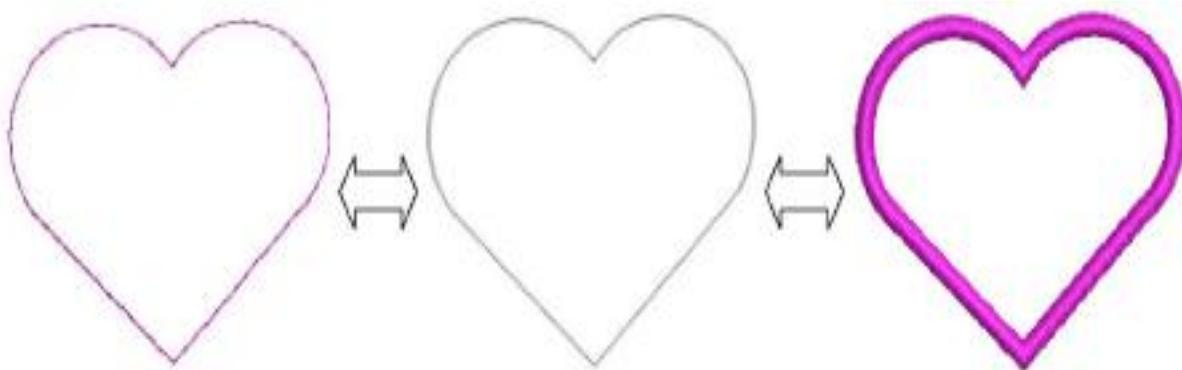


Figure. 12.2.1.2 Swap outline

Stitch length settings



Use Outline Stitch Types > Run to place a row of single run stitches along a digitized line. Right-click for settings.

For run stitch and other outline stitches, stitch length can be adjusted to suit the shape.

To adjust stitch length...

Right-click the icon to access object properties.

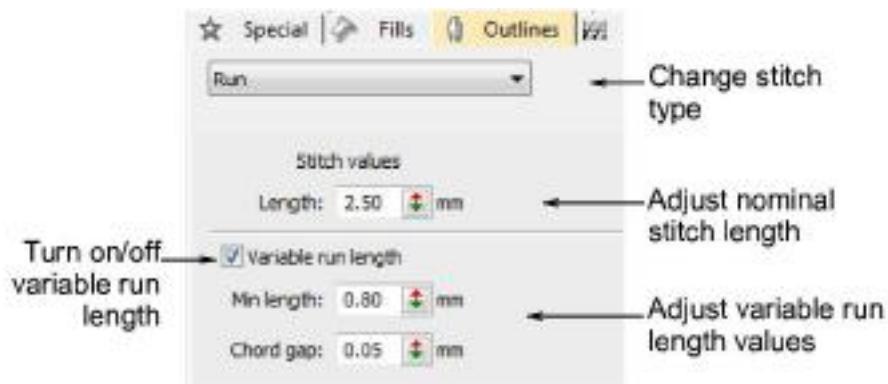


Figure. 12.2.1.3 properties

To set a fixed stitch length, adjust the Length field. For sharp curves, reduce length – e.g. 1.8 mm – so that the stitches follow the line more closely. Mimic hand-made embroidery by increasing length to, say, 4.0 mm.



Figure. 12.2.1.4 properties

- Alternatively, automatically shorten stitches to follow tight curves with the Variable Run Length option.

- In the Chord Gap field, enter the maximum distance to allow between the digitized outline and the stitches.



Figure. 12.2.1.5 properties

- In the Min Len field, enter the minimum stitch length to allow. Stitch length will not

12.2.2. Satin stitching

Satin is one of those stitch types which can be used for thicker borders or for fills. It is well-suited to narrow shapes where each stitch spans the width of the column. Because there are generally no needle penetrations breaking up the fill, satin stitch gives a glossy, high-quality appearance.



Use Fill Stitch Types > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.



Use Fill Stitch Types > Satin Raised to create raised surfaces – can be applied to lettering or used with trapunto for quilting effects. Right-click for settings.



Use Outline Stitch Types > Satin to create thicker borders or columns of even thickness. Right-click for settings.



Use Outline Stitch Types > Satin Raised to create raised satin borders – can be used with outlines for quilting effects. Right-click for settings.

With **Satin Raised** you can also adjust the number of layers of stitching. Adjust settings with the **Object Properties > Fills > Satin** tab.



Figure. 12.2.2. Satin stitching

The **Auto Spacing Settings** dialog lets you specify how rapidly the spacing changes, and by how much, by changing the stitch length and spacing values.

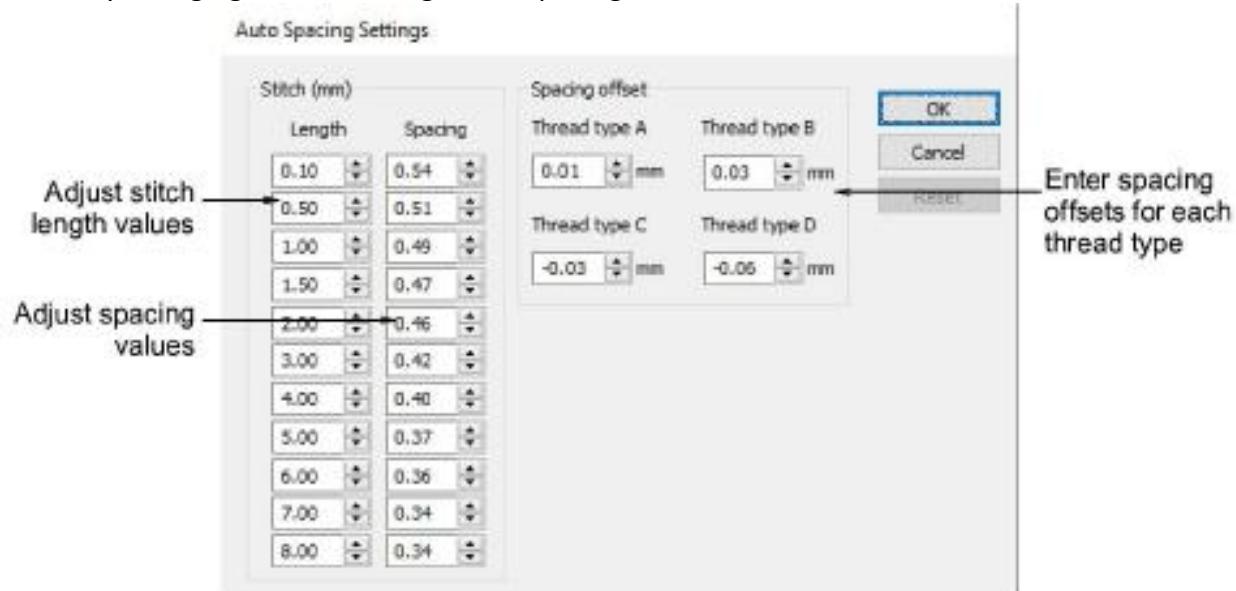


Figure. 12.2.2. Auto Spacing Settings

Note: Embroidery machines have a maximum possible stitch length which is determined by the physical frame movement. If a stitch exceeds this, it is generally broken into smaller stitches of equal length. The line formed by needle penetrations can affect the appearance of the embroidery, especially satin fills. Auto Split breaks long satin stitches into shorter ones.

12.2.3. Tatami stitching



Use Fill Stitch Types > Tatami to create fills for larger irregular shapes. Right-click for settings.



Use Outline Stitch Types > Tatami to create borders or columns of even width for different needle penetration patterns.

Tatami stitch consists of rows of run stitches and is suitable for filling large shapes. It can also be used to create borders or columns of even width for different needle penetration patterns. Settings can be accessed via **Object Properties > Outlines** and **Object Properties > Fills** tabs.

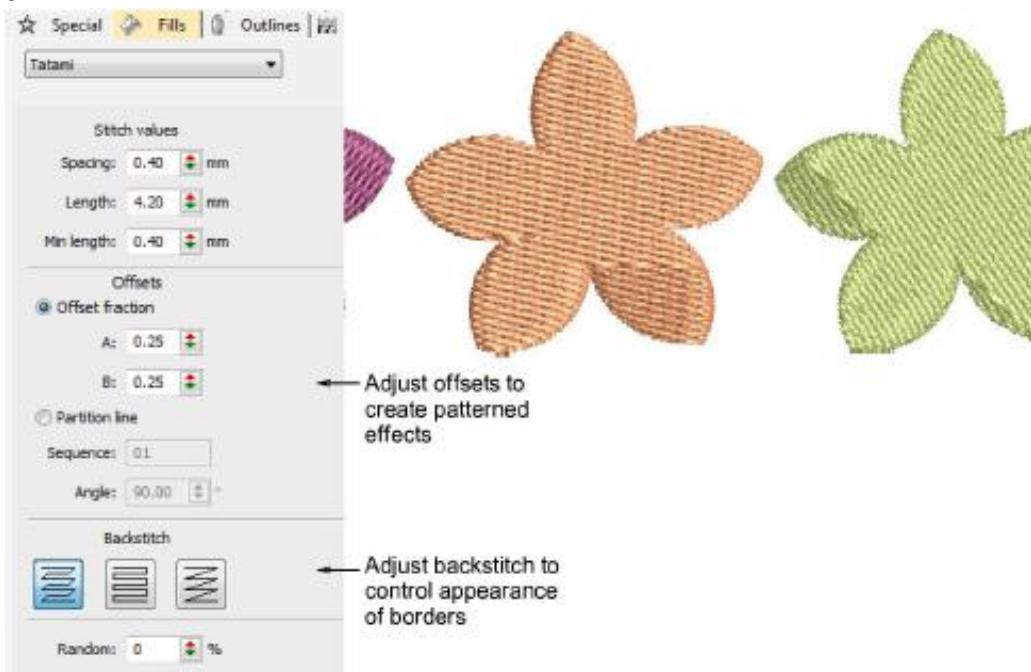


Figure.12.2.3. Tatami stitching

12.2.4. Decorative embroidery

EmbroideryStudio provides many techniques for embellishing the basic stitch types covered in this section. Some are treated as stitch types in their own right – both outline and fill – and appear on the **Stitch Types** toolbars. Others can be applied as stitch effects. In all cases, the digitizing techniques are similar.

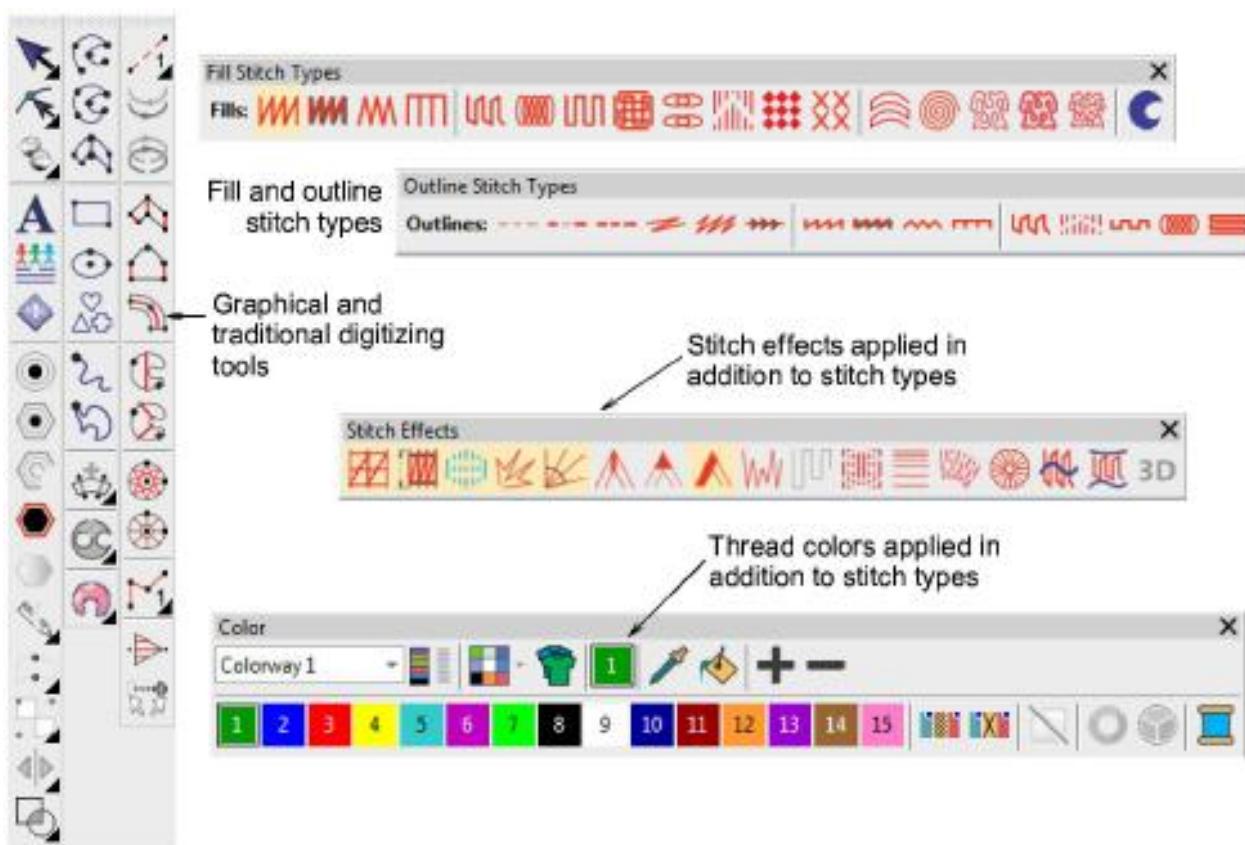


Figure. 12.2.4. Decorative embroidery

12.3. Travel

12.4.

Travel through designs It is useful to be able to view the stitching sequence color-by-color, object-by-object, or even stitch-by-stitch. The Travel toolbar provides all tools required to do so. Travel forwards or backwards with any button by right or left mouse-clicks. Traveling can be initiated from any stitch in the design. The current needle position is marked by a white cross or 'needle position marker'. The current stitch number is displayed in the Status Bar

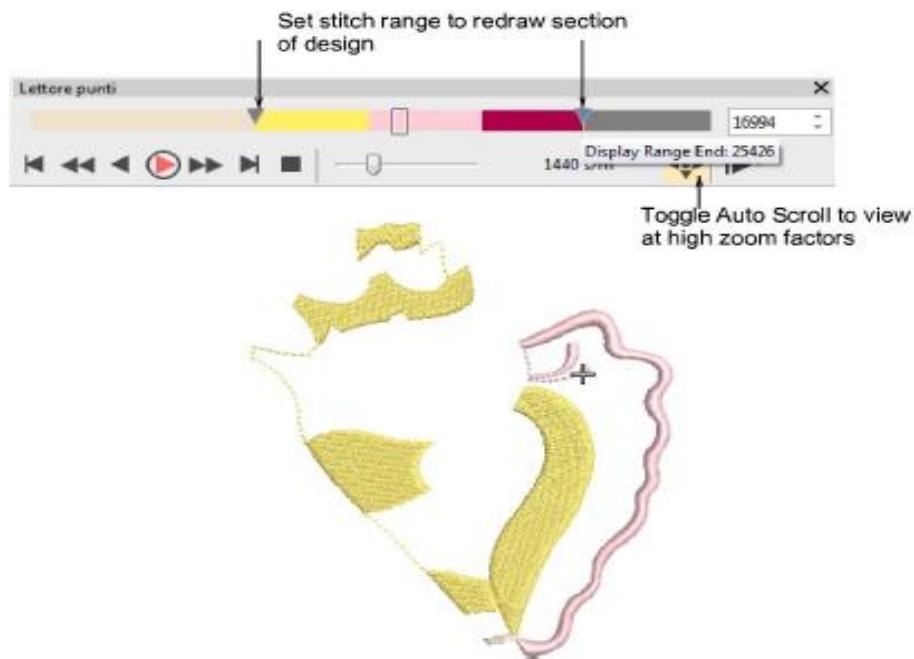


Figure. 12.3. Travel Status Bar

Travel tools



Left/right-click Travel > Start/End Design to travel to start or end of the design.



Left/right-click Travel > Travel by Object to travel to previous or next object.



Left/right-click Travel > Travel by Segment to travel to previous or next segment.



Left/right-click Travel > Travel by Color to travel to previous or next color change.



Left/right-click Travel > Travel by Function to travel to previous or next machine function.



Left/right-click Travel > Travel by Trim to travel to previous or next trim function.



Left/right-click Travel > Travel 1000 Stitches to travel backwards or forwards 1000 stitches at a time.



Left/right-click Travel > Travel 100 Stitches to travel backwards or forwards 100 stitches at a time.



Left/right-click Travel > Travel 10 Stitches to travel backwards or forwards 10 stitches at a time.



Left/right-click Travel > Travel 1 Stitch to travel backwards or forwards 1 stitch at a time.

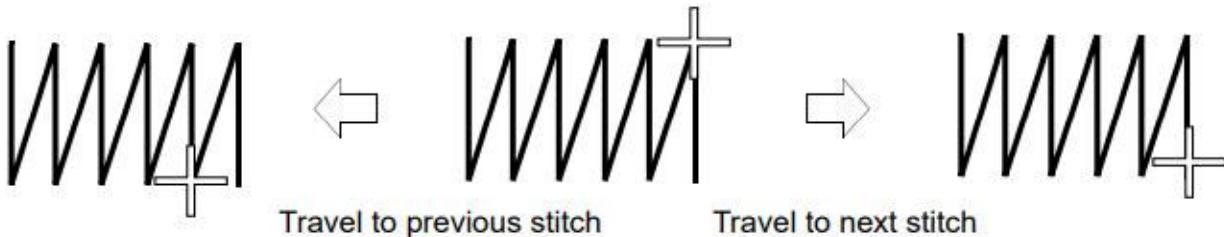


Figure. 12.3. Travel Example

Tip: While traveling through a design or editing stitches, click the Select Current icon or press Shift+0 to select the object associated with the current cursor position.

12.4. Generate Generating stitches

With ES Designer designs, stitches are automatically generated from design outlines and properties. You can either generate stitches as you digitize, or wait until you have defined the outlines. With **Generate Stitches** on (the default), stitches are calculated for new objects whenever you press **Enter**. They are also updated whenever you scale, transform or move the object. If speed is an issue, you can digitize objects with **Generate Stitches** off. You can also select objects and remove all generated stitches. With **Generate Stitches** off, only object outlines appear



Use **Stitch > Generate Stitches** to generate stitches for selected objects.

With **Generate Stitches** on (the default), stitches are calculated for new objects whenever you press **Enter**. They are also updated whenever you scale, transform or move the object. If speed is an issue, you can digitize objects with **Generate Stitches** off.

To generate stitches...

- To generate stitches for new or selected objects, select **Stitch > Generate Stitches** or press **G**.

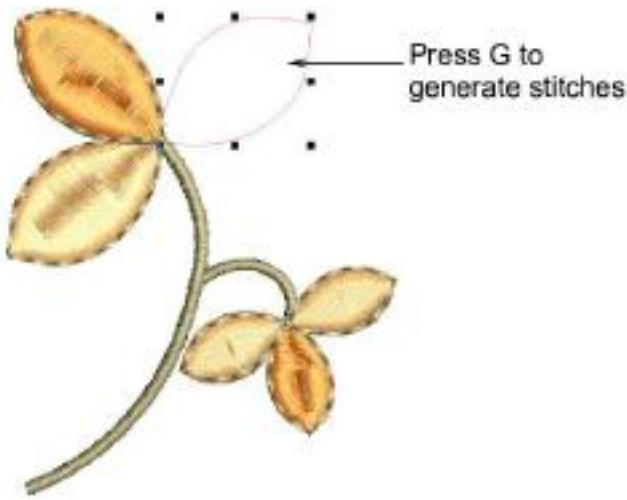


Figure. 12.4. Generate example

- To remove stitches, or digitize without generating stitches, deselect **Stitch > Generate Stitches** or press **G** again.

Tip: Make sure **Show Outlines** is selected, otherwise stitchless objects will not be visible.

12.5. Automatic Digitizing

EmbroideryStudio provides a variety of complementary tools and techniques to automatically and semi-automatically digitize suitably prepared artwork and photographs.

Following are Some Auto-digitizing features:

Feature	Overview
 Convert	The Convert feature lets you convert vector objects directly to embroidery objects. And vice versa. Entire designs can be converted in either direction.
 Auto-Digitizing	The Auto-Digitizing tools provide everything necessary to digitize shapes in graphics automatically without using manual digitizing methods.

Smart Design	The Smart Design feature automatically converts bitmap images to embroidery.
	Photo Flash The Photo Flash feature creates embroidery designs from photographs and other grayscale bitmap images. The effect resembles the output of a line printer.
	Reef PhotoStitch The Reef PhotoStitch feature also creates embroidery designs from photographs and other bitmap images. The features creates open stitching reminiscent of a coral reef.
	Color PhotoStitch The Color PhotoStitch feature creates embroidery from photographs and other images. It produces variegated stitching using multiple thread colors.

12.5.1. Preparing images for auto-digitizing

The Auto-Digitizing tools provide everything necessary to automatically digitize electronic artwork and photographs. Results depend greatly on the resolution, color depth, and quality of source images. For best results, use crisp images with well-defined subjects and strong contrasts. In addition a degree of preparation is needed. This may involve preparation using third-party graphics applications such CorelDRAW Graphics. Tools are also available within Wilcom Workspace.



Figure 12.5.1. Preparing images for auto-digitizing

12.5.2. Auto-digitizing artwork

The quality of auto-digitized designs greatly depends on the type and quality of the original artwork. Generally speaking, vector graphics preserve image quality when resized, whereas bitmaps cause problems of pixelation and image degradation when enlarged or scaled down. In order to make bitmap images more suitable for automatic digitizing, EmbroideryStudio also provides image processing capabilities and links to graphics packages.

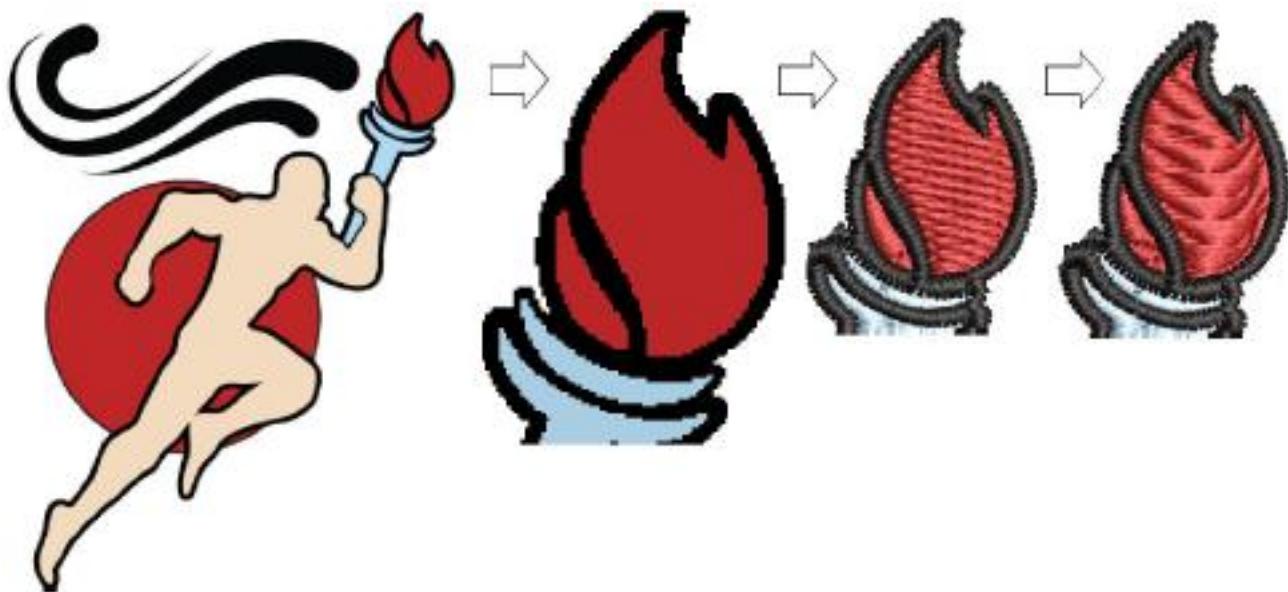


Figure. 12.5.2. Auto-digitizing artwork

12.5.3. Auto-digitize entire designs



Use Auto-Digitizing > Smart Design to create embroidery designs directly from imported artwork.



Use Auto-Digitizing > Keep Graphic Objects to retain original artwork during conversion.

For more control over object conversion, use the Smart Design method. This can recognize shapes in artwork and allow you to preset suitable stitch types for conversion. Smart Design determines stitching sequence based on closest join. Artwork is effectively ‘batch processed’ to create the many embroidery objects that make up a design. The tool handles both bitmap and vector formats.

To auto-digitize entire designs...

1. Load and preset the artwork as necessary.

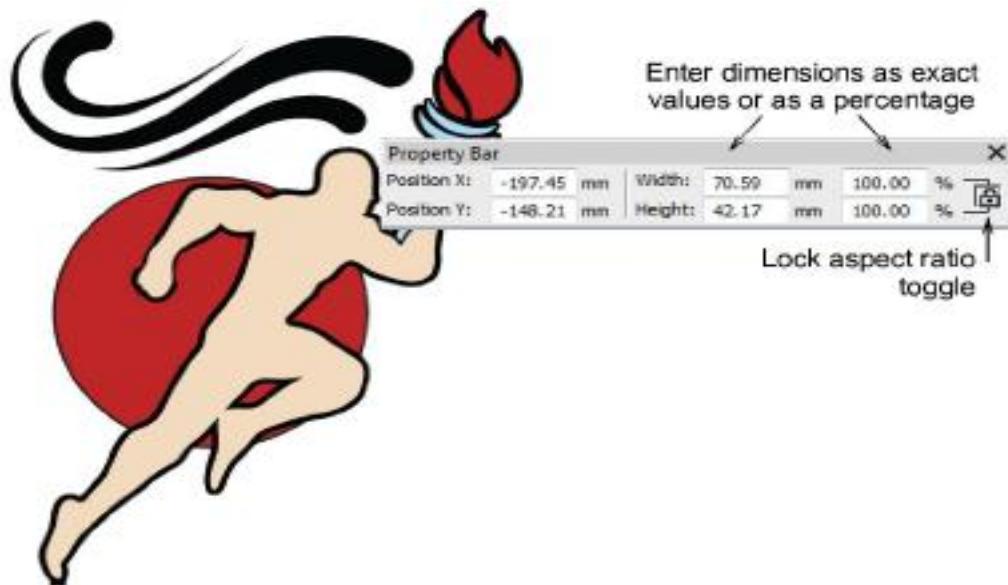


Figure. 12.5.3. Auto-digitize entire designs

2. Select the image and click Smart Design.

If the image requires preprocessing, the software displays the Prepare Bitmap Colors dialog. See Preparing images for auto-digitizing for details.

Next, the Smart Design dialog opens. Image colors are automatically sequenced and backgrounds omitted altogether.

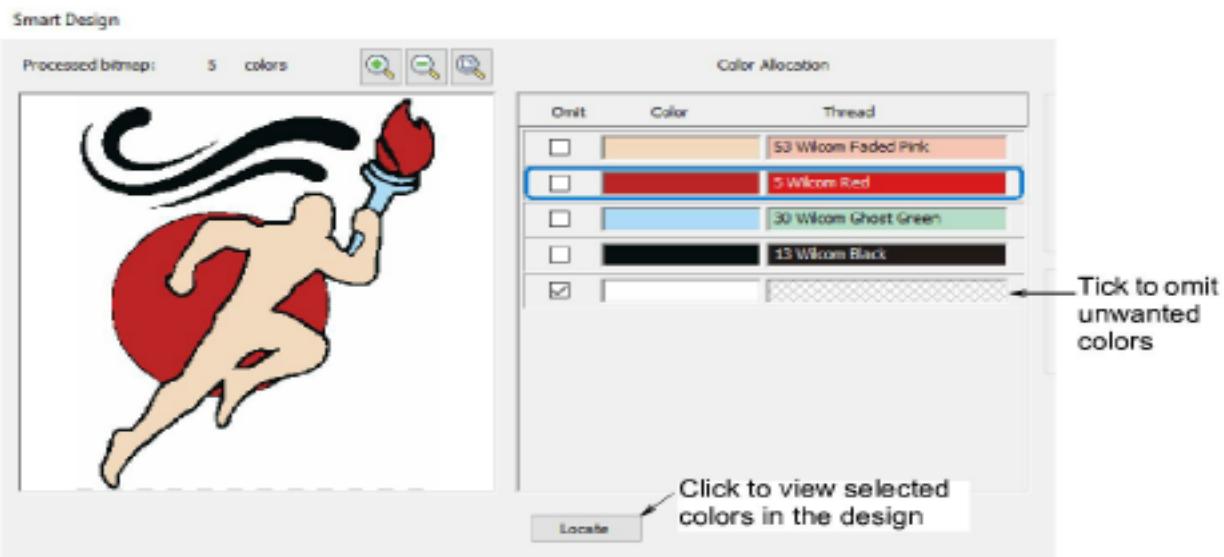


Figure. 12.5.3.1 Auto-digitize entire designs

3. Use the Color Allocation panel to omit unwanted colors. Use the Locate button to isolate selected colors.

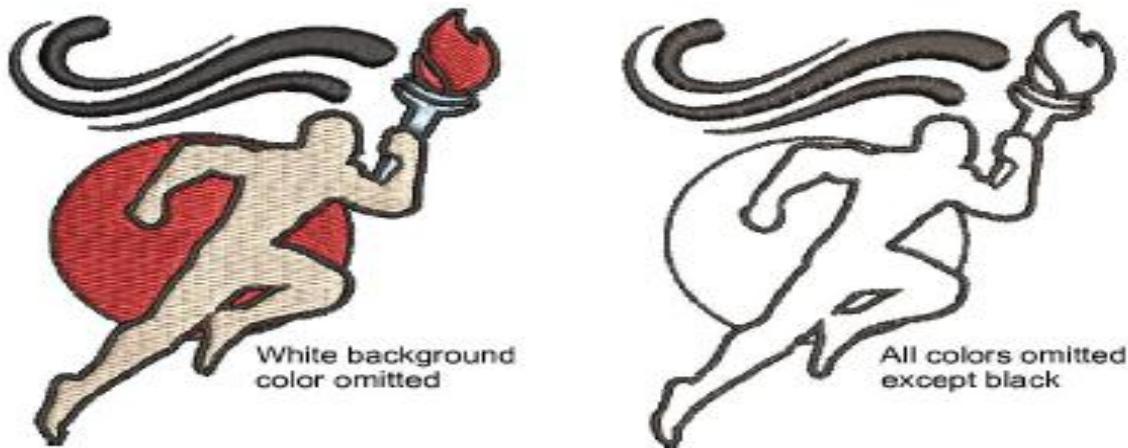


Figure. 12.5.3.2 Auto-digitize entire designs

4. Select a conversion method for color processing. By default, bitmap colors are added to the current colorway. Optionally, select a specific thread chart to match to or match colors to the current palette.

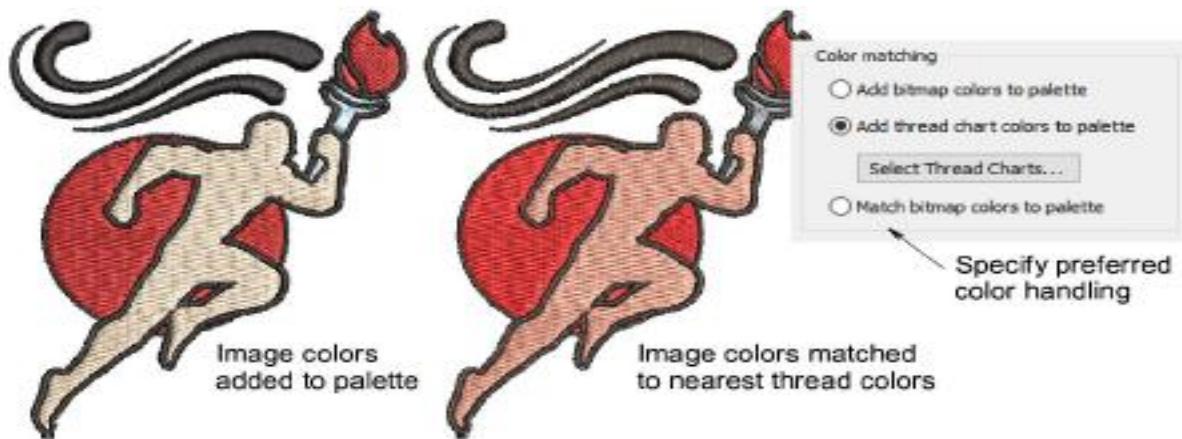


Figure. 12.5.3.3 Auto-digitize entire designs

5. Optionally, add outlines to all detected shapes. Tick Add outlines and select a palette color from the droplist. This has the effect of reinforcing all color blocks with continuous, branched running stitches.



Figure. 12.5.3.4 Auto-digitize entire designs

6. Click OK to process the image.

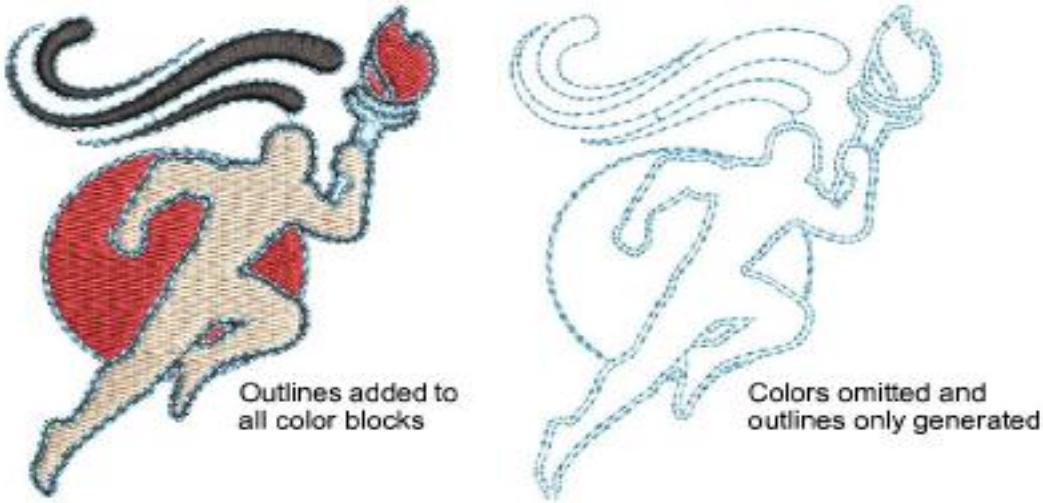


Figure. 12.5.3.5 Auto-digitize entire designs

7. Edit object properties as preferred, including colors, stitch types, and so on. Even convert run outlines to satin borders.
 - ⇒ Use the Color-Object List and/or Sequence toolbar to optimize the stitch sequence of your auto-digitized objects.
 - ⇒ Use the Closest Join and/or the Reshape tool to minimize connectors.
 - ⇒ Toggle underlays on/off with the Auto Underlay button.

12.5.4. Auto-digitizing photographs

EmbroideryStudio provides dedicated techniques for auto-digitizing photographs. Both colored and grayscale photos can be used as input.

Feature	Overview
	Photo Flash The Photo Flash feature creates embroidery designs from photographs and other grayscale bitmap images. The effect resembles the output of a line printer.
	Reef PhotoStitch The Reef PhotoStitch feature also creates embroidery designs from photographs and other bitmap images. The features creates open stitching reminiscent of a coral reef.
	Color PhotoStitch The Color PhotoStitch feature creates embroidery from photographs and other images. It produces variegated stitching using multiple thread colors.

Results depend greatly on the resolution, color depth, and quality of source images. For best results, use crisp images with well-defined subjects and strong contrasts.



Figure. 12.5.4. Auto-digitizing photographs

In addition a degree of preparation is needed. This may involve preparation using third-party graphics applications such CorelDRAW Graphics. Tools are also available within Wilcom Workspace.

Note: For the practice of further features and tools students can access contents from following website.

Reference: https://www.wilcom.com/help/e4/es/en/MainHelp/Automatic/automatic/Auto-digitizing_photographs.htm#XREF_13915_Auto_digitizing

12.6. Creating Embroidery Lettering

Embroidery lettering

Embroidery lettering Create top-quality lettering quickly and simply. EmbroideryStudio provides a large range of scalable closest-join font styles and multi-color and fancy fonts to choose from. The Lettering tool in Wilcom software is used to add text to embroidery designs. It allows users to create and customize lettering in various fonts, sizes, and styles, and place it anywhere in the design. The tool includes a wide range of features for editing and formatting text, such as adjusting kerning, line spacing, and character spacing, as well as applying various fills, borders, and effects to the text. The Lettering tool is a useful feature for adding personalized text to embroidery designs, such as names, dates, slogans, and logos.

12.6.1. For Creating embroidery lettering

For Create high-quality embroidery lettering quickly and simply. EmbroideryStudio provides a large range of scalable fonts to choose from. Add embroidery lettering directly to designs or convert from CorelDRAW Graphics. Apply formatting just like a word processor, including italics, bolding, and right/left justification. Change values for the whole text or individual letters.



Figure. 12.6.1. embroidery lettering

You can add lettering to a design by typing it directly on-screen or entering it via the Object Properties docker.



Figure. 12.6.1.1 embroidery lettering

12.6.2. Select embroidery fonts

EmbroideryStudio offers a range of purpose-built embroidery fonts optimized for embroidery design work.

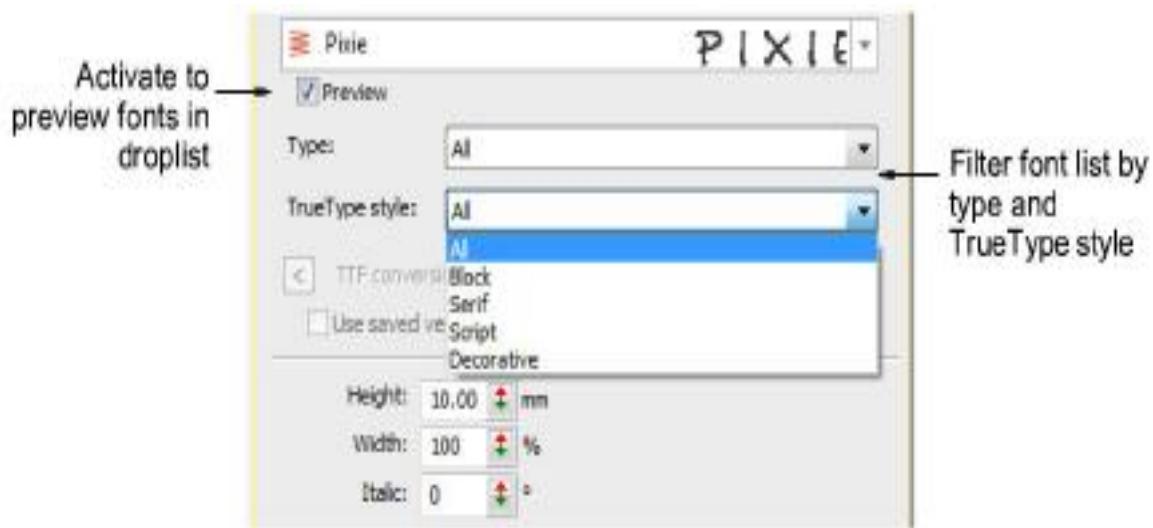


Figure 12.6.2. Select embroidery fonts

Use the dropdowns to filter the font list by type and by TrueType style:

- Choose a font type: Embroidery, TrueType, or All.
- Choose a TrueType font style: Block, Serif, Script, Decorative, or All. These only apply to TrueType fonts.

Font selection

The font list remembers the previously selected font, allowing you to continue searching from this point.

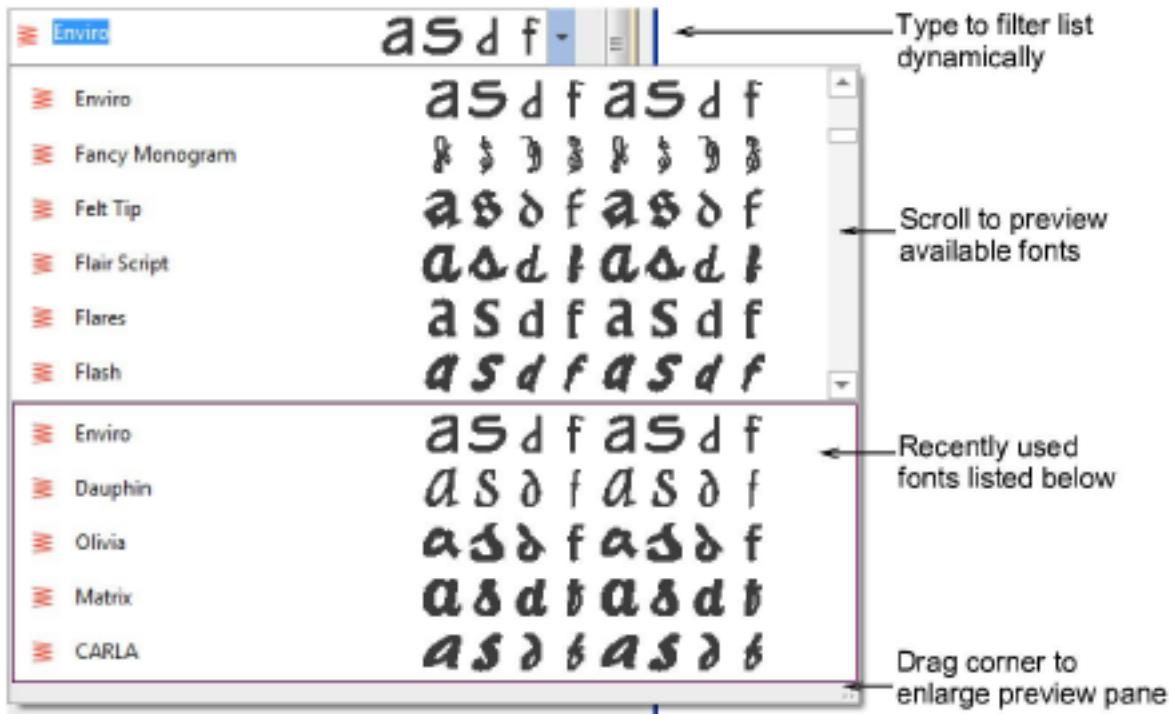


Figure. 12.6.2.1 Font Selection

- First up, the font list provides a preview of recently used fonts. This can be adjusted.
- With no lettering object selected, the preview displays the name of the font. Otherwise, it will show the selected text.
- If you know what you are looking for, simply start typing the font name and the list will update dynamically.
- The preview pane can be enlarged as necessary.

Font list settings

You can set the size of your font preview via the **Options > General** tab. You can also adjust the number of recently used fonts.

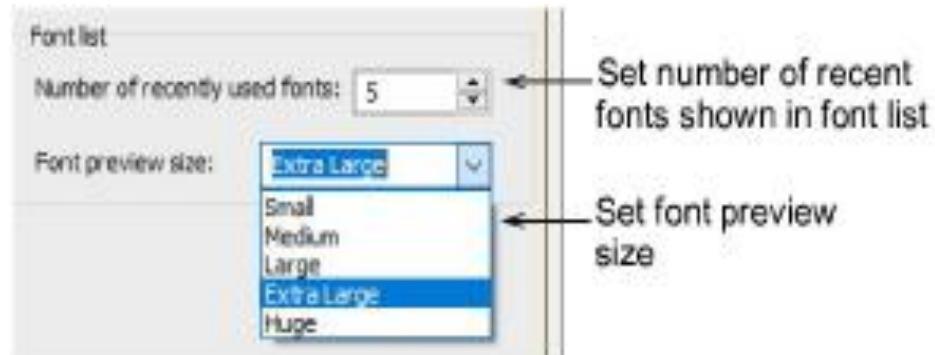


Figure. 12.6.2.2 Font list Selection

12.6.3. Conversion of TrueType and OpenType fonts

In addition to dedicated embroidery fonts, EmbroideryStudio also converts any TrueType or OpenType font on your system on-the-fly into an embroidery font. This is an important feature for Asian fonts which may contain several thousand characters.

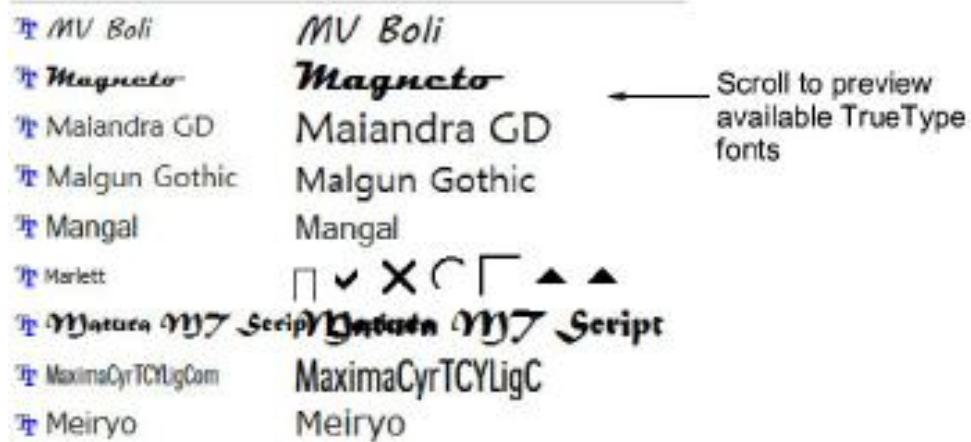


Figure. 12.6.3. Conversion of TrueType fonts

The process is automatic. The result is similar to manually digitized fonts although the quality may not be quite as good. It depends on the original shapes. Narrower serif type fonts produce better results than blocked fonts.



Figure. 12.6.3.1 Conversion of TrueType fonts

12.6.4. Support for complex text layouts

EmbroideryStudio provides support for 'complex text layout' (right-to-left) and non-European scripts including Arabic, Hebrew, and Thai. With 'RTL languages' like Arabic and Hebrew, the order of characters is correctly rendered in the generated lettering objects. Complex text rendering is also supported in other languages which include combined characters



12.6.4. Support for complex text layouts

Tip: It is also possible to select TrueType fonts in CorelDRAW® Graphics Suite and convert them on-the-fly via **Convert** tool.

Recommended sizes

For best results when stitching, do not exceed the recommended maximum or minimum sizes. Note, however, that recommended heights refer to UPPER CASE letters. Most embroidery fonts are digitized from an original TrueType Font (TTF), some of which have lower-case letters – e.g. ‘a’ and ‘c’ – which are about 70% the height of a capital letter. As a result, these letters may be too small to embroider neatly. You may need to increase the size of lower-case characters to suit the embroidery.

12.6.5. Special characters

You can create special characters in each font by holding down the **Alt** key on your keyboard and typing **0** (zero), its code, using the numbers on the keypad. For example, to type ê with the code **234**, type **Alt+0234**. The accented letter will appear when you release the **Alt** key.

Not all characters are available in all fonts.

12.6.6. Bling lettering

EmbroideryStudio also provides dedicated **Bling Lettering**.



Figure. 12.6.6. Bling lettering

12.6.7. Add embroidery lettering on-screen



Use Toolbox > Lettering to create embroidery lettering directly on-screen. Right-click to access settings.

If it is not essential to fit letters precisely to a certain area, you can type them directly on-screen as with a word processor. Current settings are used. You can also modify lettering objects directly on-screen to achieve various artistic effects.

To add embroidery lettering on-screen...

- Click the Lettering icon.
- Select a color from the Color toolbar.
- Click an insertion point and start typing. To start a new line, press Shift+Enter.

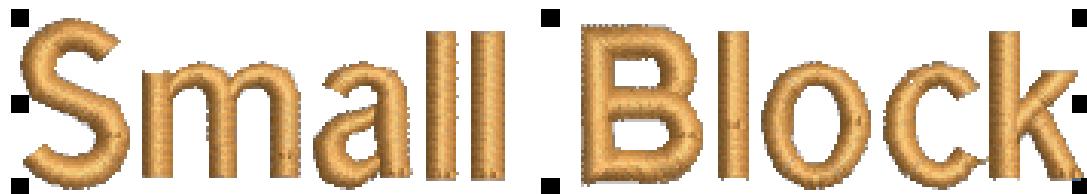


Figure. 12.6.7. Add embroidery lettering on-screen

- Press Enter to complete.

Note: Baselines determine the shape of lettering objects in a design. You can place lettering on a straight horizontal or vertical line, curve lettering around a circle or arc, or digitize your own baseline.

12.6.8. Editing embroidery lettering

Embroidery Studio gives you interactive and precise numeric control over many settings affecting lettering objects. Adjust both individual letters and lettering objects as a whole. Apply horizontal, vertical, and curved baselines. Modify baseline type, length, radius and angle, as well as position. You can even define the rotation angle of letters relative to the baseline or the design itself. See Editing Embroidery Lettering for details.



Figure. 12.6.8. Editing embroidery lettering

Adjusting lettering properties

Letter height, width, italic and justification can all be controlled via object properties. Letter, word and line spacings can also be controlled via properties. Letter spacing is calculated automatically according to justification – left, right, center, or fully justified.

12.6.9. Working with baselines

Baselines determine the shape of lettering objects. You can place lettering on a straight horizontal or vertical line, curve lettering around a circle or arc, or digitize your own baseline. You can digitize baselines on-screen or, if you are working from an enlargement drawing, on a digitizing tablet.



Figure. 12.6.9. Working with baselines

MULTIPLE CHOICE QUESTION

1. Which of the following best describes duplicating designs?
 - a) Creating original designs from scratch
 - b) Replicating existing designs without permission
 - c) Using templates to create new designs
 - d) Copying designs with permission from the original creator
2. Why is duplicating designs without permission unethical?
 - a) It is illegal
 - b) It is against artistic integrity
 - c) It devalues the original creator's work
 - d) All of the above
3. What is the term for creating new designs based on pre-existing designs?
 - a) Copying
 - b) Duplicating
 - c) Replicating
 - d) Deriving
4. Which stitch in embroidery is similar to a running stitch but with longer stitches?
 - a) Backstitch
 - b) Chain stitch
 - c) Running stitch
 - d) Stem stitch
5. Which stitch is used to create a zigzag pattern along an edge in embroidery?
 - a) Blanket stitch
 - b) Buttonhole stitch
 - c) Cross stitch
 - d) French knot
6. Which stitch is used to create a raised or 3D effect in embroidery?
 - a) Chain stitch
 - b) Padded satin stitch
 - c) Stem stitch
 - d) Whip stitch
7. Which stitch is used to create a fill pattern in embroidery?
 - a) Chain stitch
 - b) Cross stitch
 - c) Satin stitch
 - d) Running stitch
8. Which stitch is used to create a knot-like texture in embroidery?
 - a) French knot
 - b) Bullion knot
 - c) Buttonhole stitch
 - d) Fly stitch
9. What is the Travel tool used for in Wilcom software?
 - a) To create travel paths for stitching designs
 - b) To add text to embroidery designs
 - c) To edit stitch density in designs
 - d) To apply special effects to designs
10. What is the Generate tool used for in Wilcom software?
 - a) To create new embroidery designs from scratch
 - b) To convert raster images to embroidery designs
 - c) To add special effects to existing designs
 - d) To generate stitch files from digitized designs
11. Is the Generate tool a part of the basic Wilcom software package or is it an add-on feature?
 - a) It is included in the basic Wilcom software package
 - b) It is an add-on feature that must be purchased separately
 - c) It is available as a free trial for a limited time

- d) It is only available in certain versions of Wilcom software

12.What is Automatic Digitizing in Wilcom software?

- a) A tool that automatically creates embroidery designs from scratch
 - b) A tool that converts raster images to embroidery designs
 - c) A tool that manually digitizes designs with greater precision
 - d) A tool that automatically generates stitch files from digitized designs

13. Is Automatic Digitizing available in all versions of Wilcom software?

- a) Yes, it is a standard feature in all versions
 - b) No, it is only available in certain versions
 - c) It is available as a separate add-on feature that can be purchased
 - d) It is available as a free trial for a limited time

14.What is the Lettering tool in Wilcom software used for?

- a) To create new embroidery designs from scratch
 - b) To convert raster images to embroidery designs
 - c) To add text to existing designs
 - d) To generate stitch files from digitized designs

15. Can lettering be applied to any part of an embroidery design?

- a) No, lettering can only be applied to specific parts of a design
 - b) Yes, lettering can be applied to any part of a design
 - c) It depends on the complexity of the design
 - d) It depends on the file format of the design

16. How many different types of fonts are available in the Lettering tool of Wilcom software?

- a) 5 b) 10 c) 15 d) Over 100

MCQS ANSWERS

SHORT QUESTIONS

1. What is the process for duplicating an existing design in Wilcom?
 2. What are the common reasons for duplicating a design in Wilcom?

3. How can you modify a duplicated design in Wilcom to create a new and unique embroidery design?
4. What file formats can you use to import designs into Wilcom for duplication?
5. What is the difference between running stitch and satin stitch?
6. How do you create a fill stitch in Wilcom?
7. What is a steil stitch and when is it commonly used?
8. How do you adjust the density of a stitch in Wilcom?
9. What is the Travel tool in Wilcom software used for?
10. How does the Travel tool in Wilcom software help minimize thread breaks?
11. Can the Travel tool be used to adjust the stitch density of a design in Wilcom software?
12. What types of embroidery designs benefit the most from the Travel tool in Wilcom software?
13. What file formats are supported by the Travel tool in Wilcom software?
14. What is the Generate tool used for in Wilcom software?
15. How many types of stitches are available in the Generate tool of Wilcom software?
16. What is the difference between the Generate tool and the Auto-Digitize feature in Wilcom software?
17. What file formats are supported by the Generate tool in Wilcom software?
18. What is Automatic Digitizing in Wilcom software?
19. What types of images can be used for Automatic Digitizing in Wilcom software?
20. What are the advantages of using Automatic Digitizing in Wilcom software?
21. What is the Lettering tool used for in Wilcom software?
22. How many types of fonts are available in the Lettering tool of Wilcom software?
23. Can special effects be applied to embroidered lettering in Wilcom software?
24. What file format does the Lettering tool support in Wilcom software?

LONG QUESTIONS

1. How can you use Wilcom to duplicate a complex embroidery design that has multiple layers and stitch types?
2. Explain the steps involved in using Wilcom to create a duplicate embroidery design that is optimized for a different fabric or embroidery application?
3. How can you use Wilcom to create intricate 3D embroidery designs with different types of stitch textures and depths?
4. What is the process for digitizing a complex design that requires the use of multiple stitch types in Wilcom?
5. Explain the different types of underlay stitches in Wilcom with examples.
6. How can the Travel tool be used to optimize the stitching sequence in Wilcom software?
7. What are some of the key considerations when using the Travel tool in Wilcom software for a large embroidery design?
8. How can the Generate tool be used to create complex embroidery designs in Wilcom software?
9. What are some of the key factors to consider when choosing stitch types and parameters in the Generate tool of Wilcom software?
10. What are some of the limitations of Automatic Digitizing in Wilcom software?
11. How can the results of Automatic Digitizing be improved in Wilcom software?
12. What are the key considerations when using Automatic Digitizing in Wilcom software for a custom embroidery design?
13. How can the Lettering tool be used to customize the appearance of embroidered lettering in Wilcom software?
14. What factors should be considered when choosing a font for embroidery lettering in Wilcom software?
15. Can the Lettering tool be used to create multi-line text or text with curved shapes in Wilcom software? If so, how?

References:

1. Wilcom EmbroideryStudio e4 User Manual by Wilcome studio
2. <https://www.wilcom.com/help/e4/es/en/MainHelp>
3. <https://www.wilcom.com/help/e4/es/en/MainHelp/Automatic>