

EP1000

Computer Aided Design

Computer Graphics

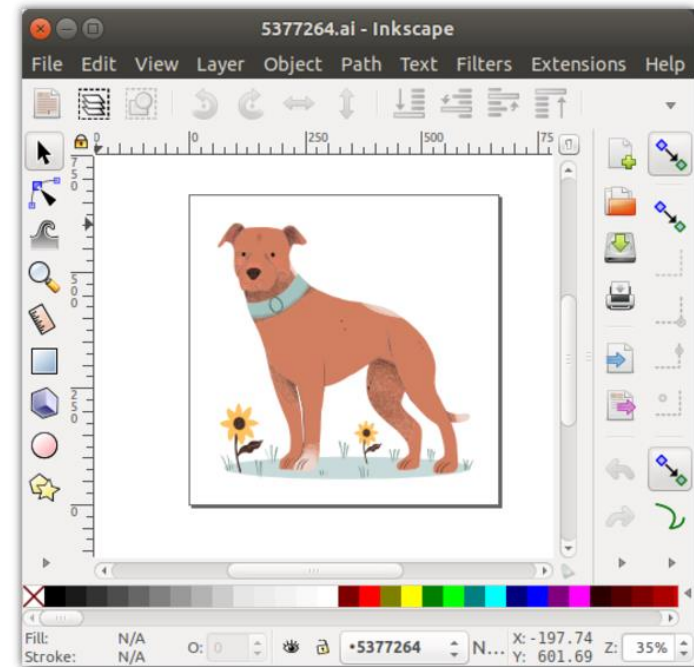
Raster

- Deals with pixels on the screen
- Uses for photographs, images
- Formats: .bmp, .jpg, .png
- [Raster: Zoomed In](#)



Vector

- Uses mathematical functions
- Characterized by clean lines
- Formats: .dxf, .svg, .STEP
- [Vector: Zoomed In](#)
- [Dog Vector Image \(AI\)](#)



Raster Graphics

- Software: [GIMP](#), Adobe PhotoShop, Paint
- Allows creation, editing of images (photographs)
- Common formats .jpg, .png

Task

- Choose one of your selfies
- Remove the background of the image
- Substitute with any scene or keep it transparent
- Resize to a width of 1024 pixels
- Document your work in your project blog

Ref: [GIMP: Remove The Background And Make It Transparent](#)

Vector Graphics

- Software: [InkScape](#), Adobe Illustrator, Corel Draw
- Allows creation of vector art
- Common formats .svg, .ai

Task

- Create and design a logo or initial for yourself
- Trace the outline of the design to form a vector art
- Create a Color and B/W logo with your vector art
- Document your work in your project blog

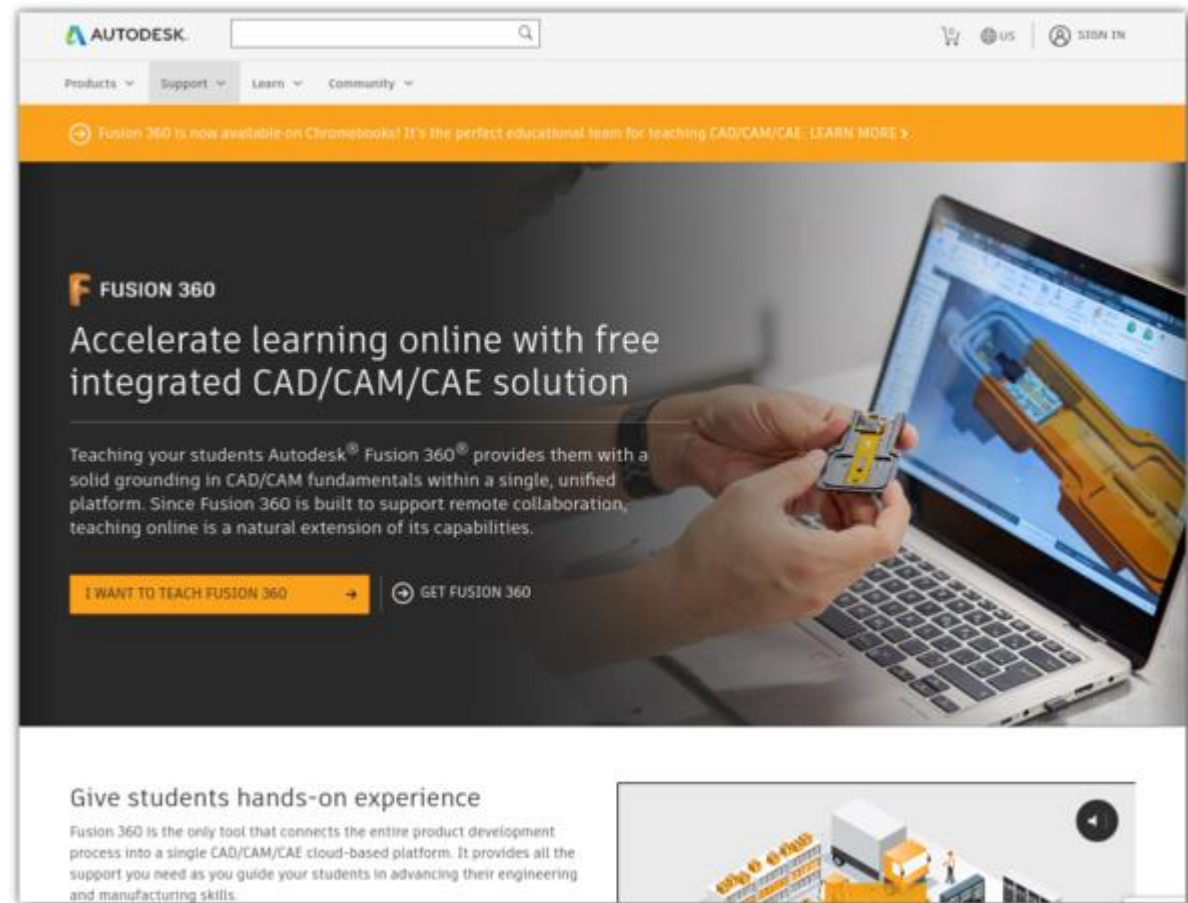
Ref: [Inkscape Tutorial: Vector Image Trace](#)

Computer Aided Design

- Vector tools that allow you to
 - create your design
 - draw and model
 - simulate and test
 - analyse the results
- We will mainly use the tool to Draw and Model the design
- Extract digital information for fabrication
- CADD Tools
 - [Autodesk Fusion 360](#),
 - [Autodesk Inventor](#)
 - [Draftsight](#) , [FreeCAD](#)
 - [Rhinoceros3D](#)
 - [Solidworks](#)

Autodesk Fusion 360

- An integrated CAD, CAM and CAE software.
- Can consolidate your product development process.
- Provided free for educational use (requires registration)
- Easy to learn and master, with lots of online tutorials



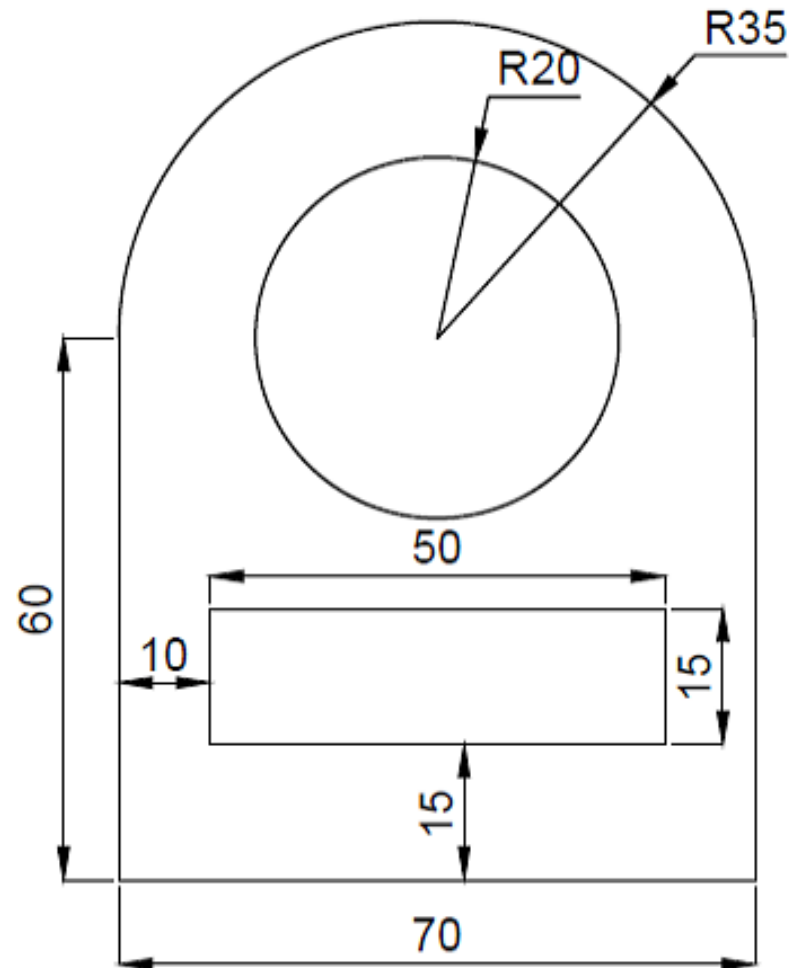
Getting Started

- Register and Install Fusion 360 ([Education license](#)) on your system.
- Here are some good tutorials to get you started:
 - Autodesk: [Getting Started With Fusion 360](#)
 - Kevin Kennedy - [Product Design Online](#)
 - [Fusion 360 Interface](#)
 - [Fusion 360 for Beginners](#)
 - Warwick University [Fusion 360 Tutorials](#)

Exercises

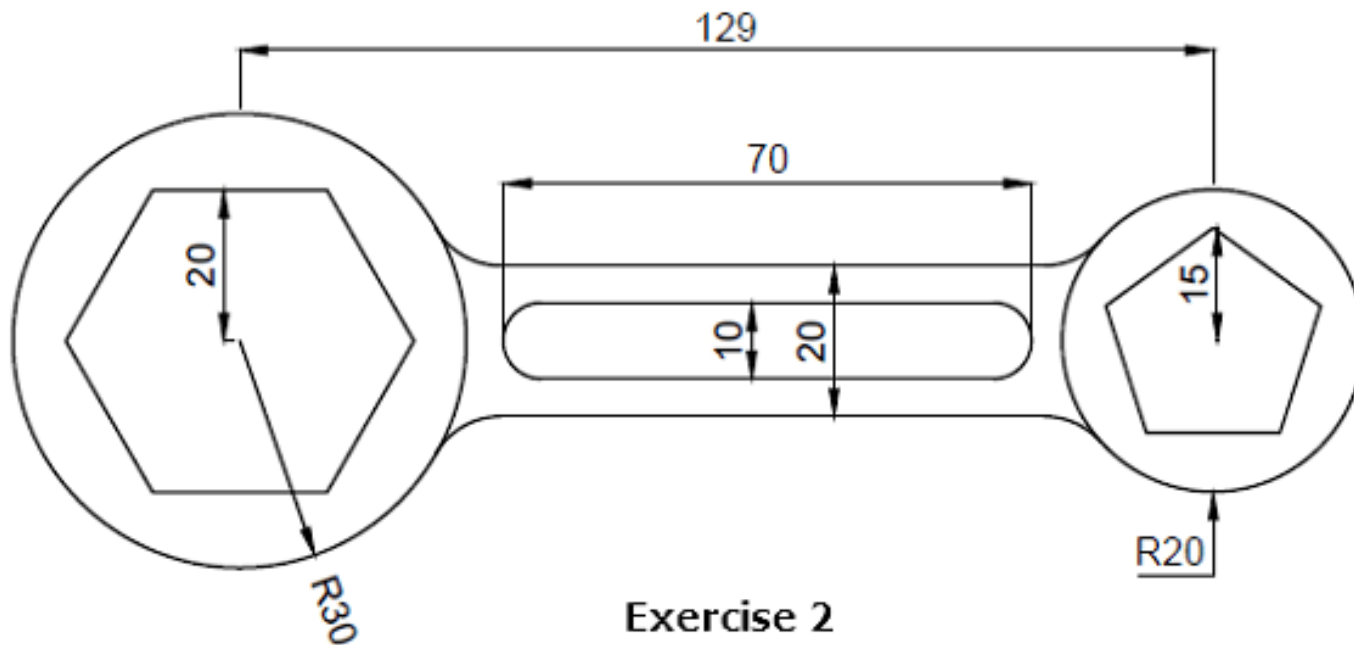
- Complete exercise 1 and 2
- Export your completed files (.f3d) and include them in your report

Drawing Exercise 1



Exercise 1

Drawing Exercise 2



Exercise 2

[Worked Example](#)

EP1000
Computer Aided
Design
End