

# **EP1000**

## **Computer Aided Design**

# Computer Graphics

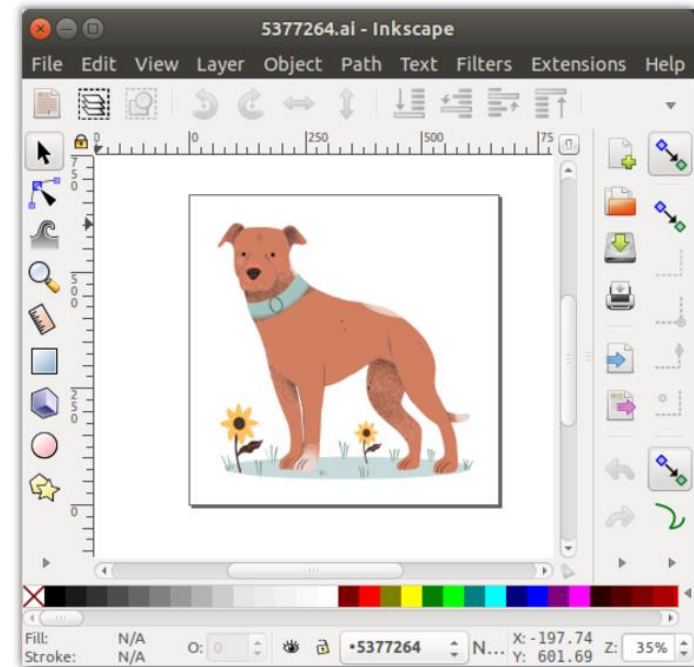
## Raster

- 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 a seaside scene
- 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

- Choose an image of an animal
- Trace the outline of the image to form a vector art
- Create a B/W logo with your vector art
- Document your work in your project blog

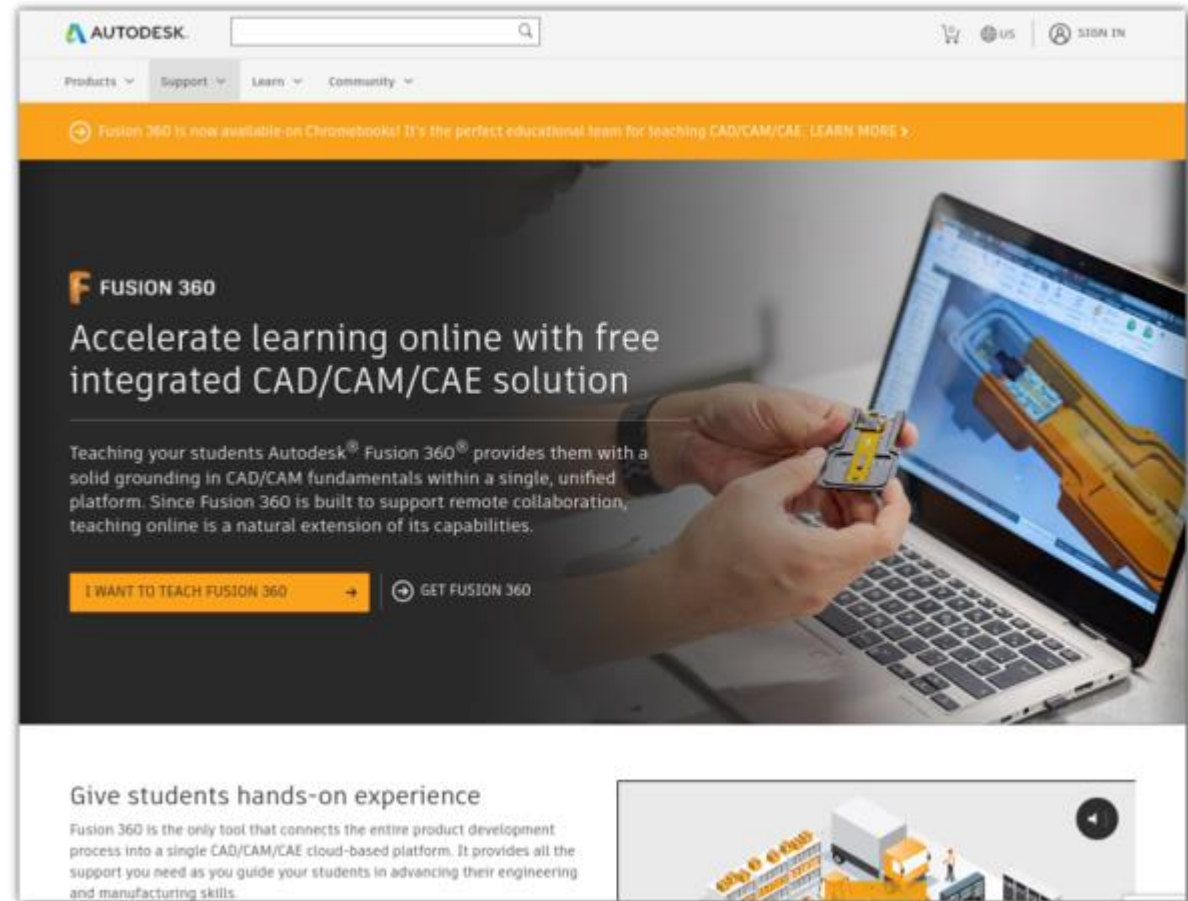
Ref: [Inkscape Tutorial: Vector Image Trace](#)

# 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



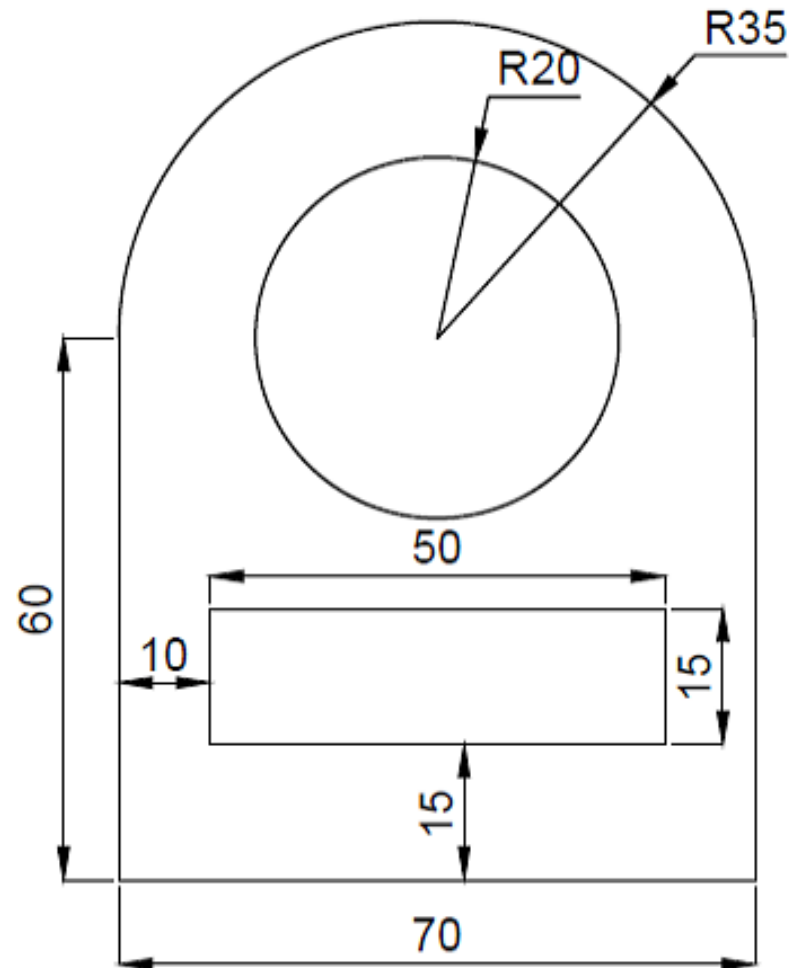
# Getting Started

- Register and Install Fusion 360 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

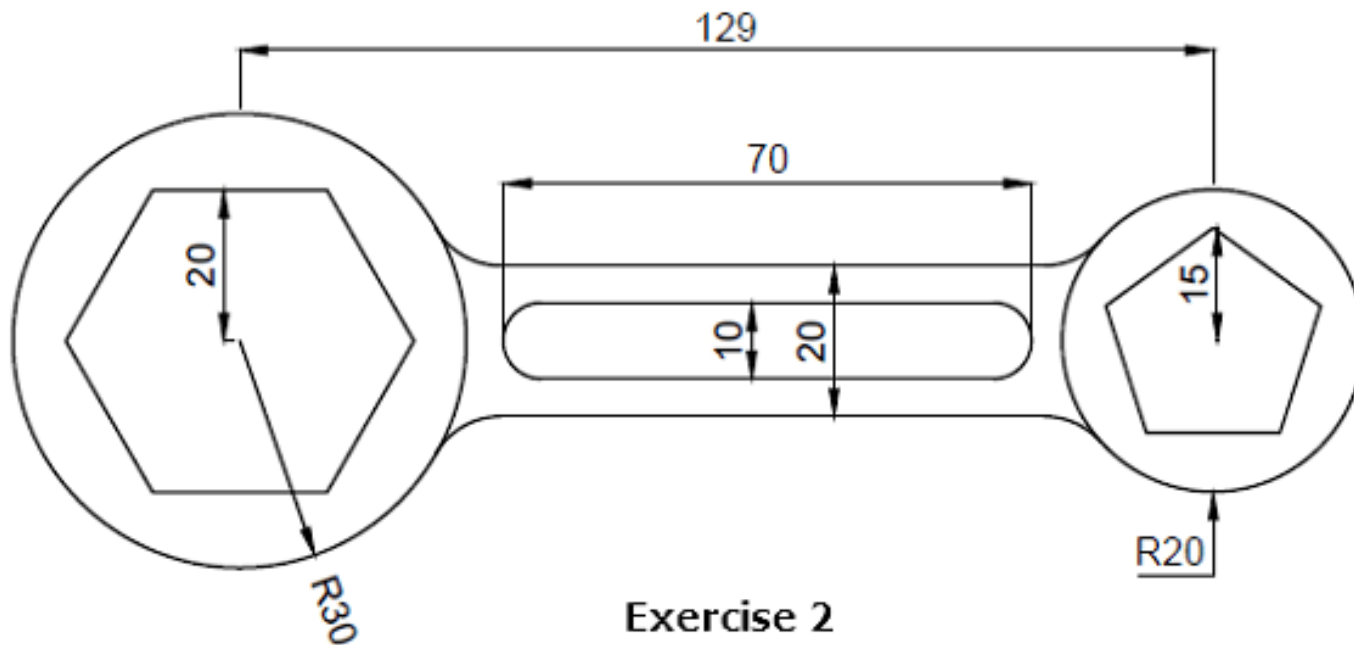
# Drawing Exercise 1



Exercise 1



# Drawing Exercise 2



[Worked Example](#)

# EP1000

## Computer Aided Design

**End**