

Session # 2 Sketching in CAD

Agenda

- 2D Sketching continued
- Dimensioning Sketches in Inventor
- Using Extend & Trim commands
- Fillets and Chamfers

Reference

Inventor® R10, Chapters 1 & 2

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2D Sketching Terminology

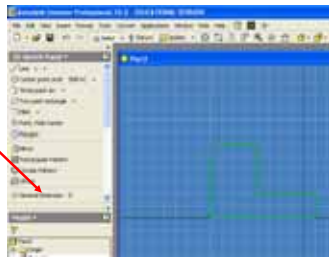
- **Shapes** are 2D elements of a profile created by the 2D Sketch Panel tools, e.g. circles, rectangles.
- **Profiles, sketches, figures** all describe 2D representations of a 3D part

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Adding Dimensions to Sketch

Left Click on **General Dimension**

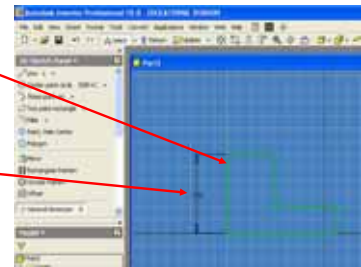
There are three ways to add dimensions as shown in the following slides



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#1: Dimensioning a Single Line

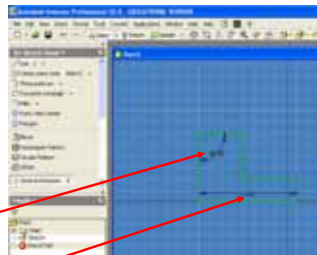
1. Left click on the line to be dimensioned.
2. Move the cursor to the side.
3. Left click to place the dimension.
4. To edit, left click on the dimension number.



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#2: Dimensioning Between 2 Lines

1. Left click on the first line then left click on the second line.
2. Move the cursor, and left click to place the dimension.
3. You will get the angle between lines if they are not parallel, and the distance between them if they are.



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#3: Dimensioning from a point to a point or from a point to a line

1. Click in succession on each point or the point then the line.
2. Then position the dimension as before.
3. The dimension will represent the distance between the points or the perpendicular distance between the point and the line.



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Inventor Tip: If Your Sketch Expands Beyond Your Window

The "Zoom All" Button on the Standard Toolbar will rescale your window to the size of your sketch

Or you can use the "Zoom" Button to rescale your window as you wish

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The "Extend" Command

To extend a line to another line/feature:

1. Left click on the "Extend" command.
2. Move cursor over line to be extended.
3. Left click to extend line.

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The "Trim" Command

To trim a feature with respect to another feature:

1. Left click on the "Trim" command.
2. Move cursor over feature to be trimmed.
3. Portion to be trimmed is highlighted and dotted.
4. Left click to trim feature.

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The "Chamfer" Command

Chamfers cut off sharp corners at an angle and produce a plane face.

1. Left click on the "Chamfer" command.
2. Select width and angle of chamfer.
3. Select the two edges between which chamfer is to be added.
4. Left click to add chamfer.

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The "Fillet" Command

Fillets round off sharp edges with a radius and produce a smooth curved edge.

1. Left click on the triangle beside the Chamfer command to bring up the "Fillet" command.
2. Select radius of fillet.
3. Select the two edges between which fillet is to be added.
4. Left click to add fillet.

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Final Sketch

Chamfers of width 0.125in

Fillet of radius 0.25in

Circle of diameter 0.35in with same center as semi-circle

Chamfer of width 0.50in

Semi-circle added using "Trim" command

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Assignment: Inv HW2
Date: 07/07/2070

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Today's Assignment:

- Start with L-shaped sketch of Inventor HW1.
- Using Trim, Chamfer and Fillet commands, reproduce the sketch shown in slide #12.
- Add appropriate dimensions and finish sketch.
- Update text, save and print the sketch.