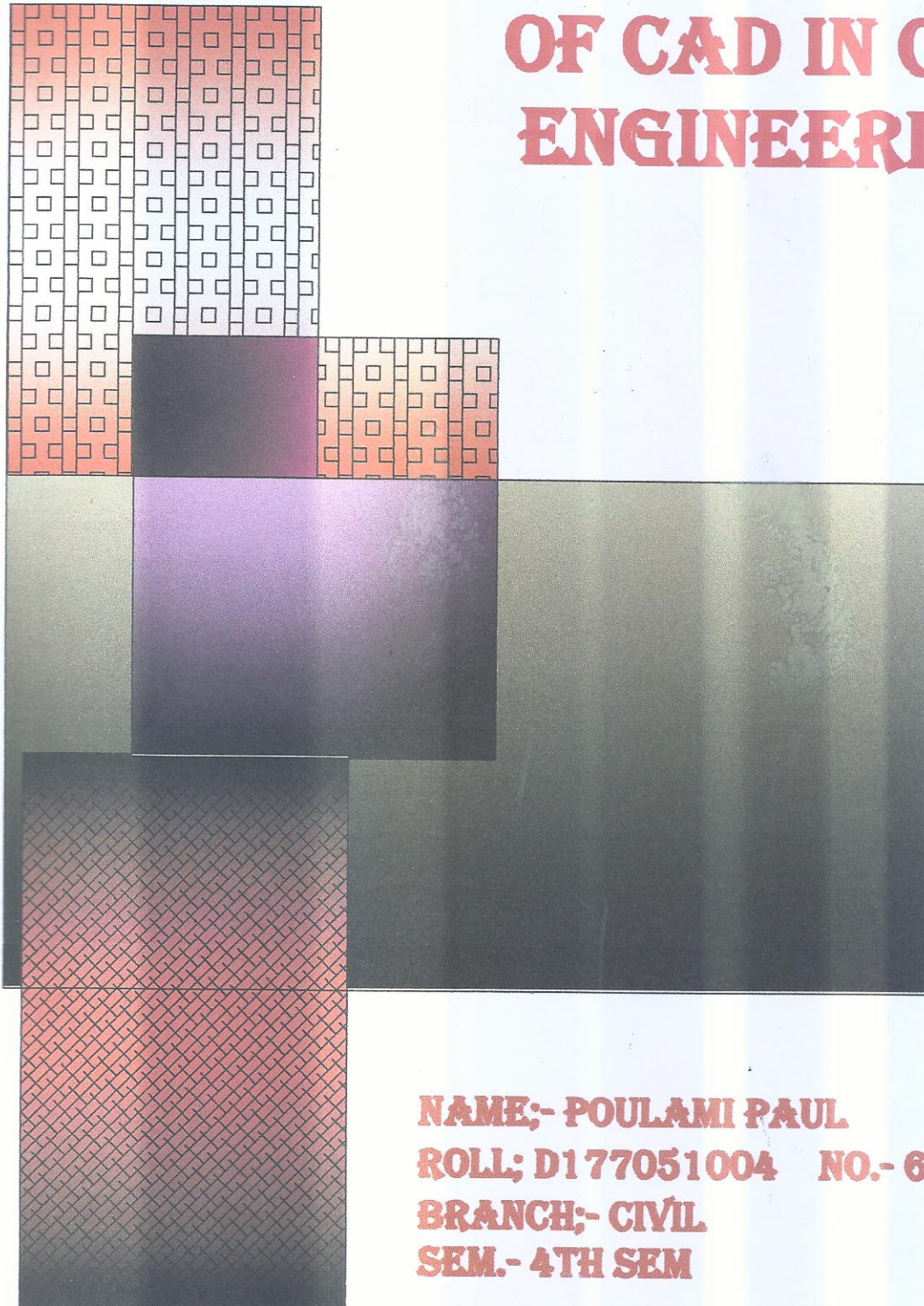


APPLICATION OF CAD IN CIVIL ENGINEERING 1



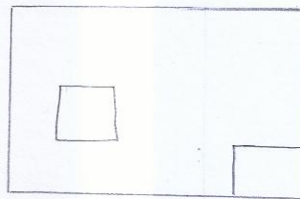
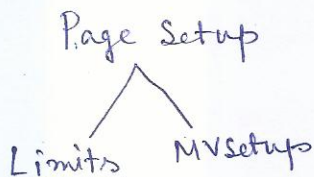
NAME;- POULAMI PAUL

ROLL; D177051004 NO.- 60589

BRANCH;- CIVIL

SEM.- 4TH SEM

SUBJECT: AUTO CAD
(Automatic Computer Aided Design)



Com: Limits ↵

Specify the lower left corner: 100, 100 ↵

Specify the upper right corner: 1100, 2100 ↵

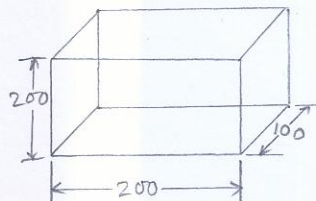
Final Setup

View → zoom → All ↵

How to draw a rectangle:

com: Rec ↵

Enter the value: 100, 50 ↵



or Tool bar → Rectangle → Select the first point where you draw the rectangle.

Enter the value: 100, 50 ↵

Finally viewed the total drawing

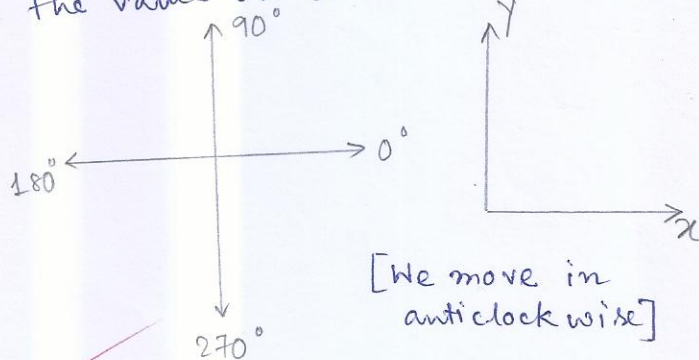
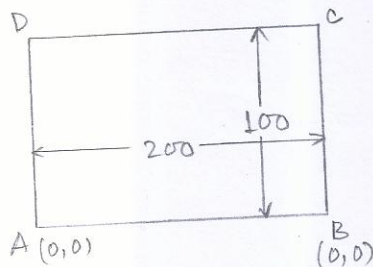
view → zoom → All/Extent

How to draw a line:

Com: L ↵

Line specify first point: Enter the value on click the point, where the line is start.

Specify the next point: Enter the value on click the other end point ↵



AB = @ 200 < 0° ↵

BC = @ 100 < 90° ↵

CD = @ 200 < 180° ↵

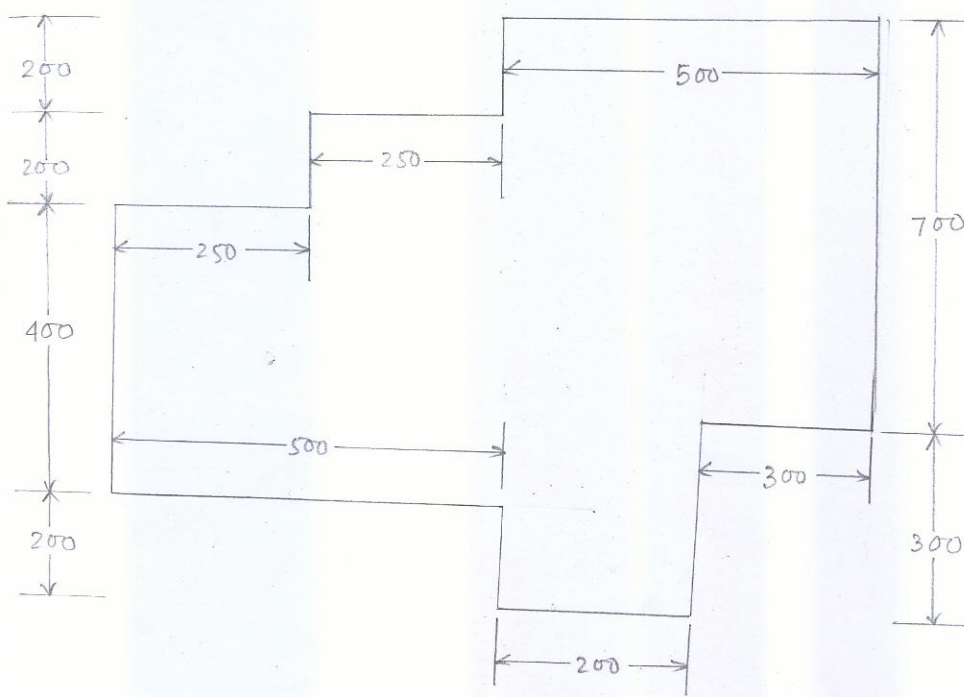
DA = @ 100 < 270° ↵

How to draw a line dimension

[@ value < Angle ↵]

How to check the line dimension

Dimension from draw measurement [Dimension → Linear] to new dimension.



How to modify dimension

Dimension → Dimension
 style → Modify

[F8 → Ortho on/off]
 (Function → Straight line draw horizontal/vertical)

[F3 → Osnap on/off]
 (Function → select the meet, end and starting point)

Paper size

A0 = 1189 x 841, A1 = 841 x 594, A2 = 594 x 420,
 A3 = 420 x 297, A4 = 297 x 210.

MV Setup (Multiple View point setup)

Com: MV Setup ↵

Enable paper space?: N ↵ (for NO.)

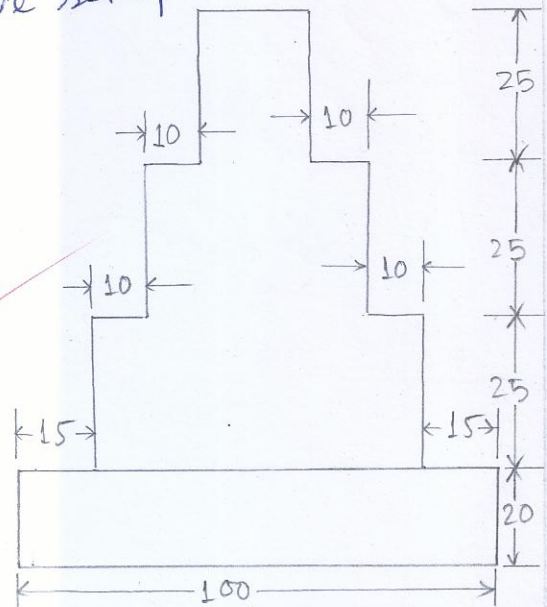
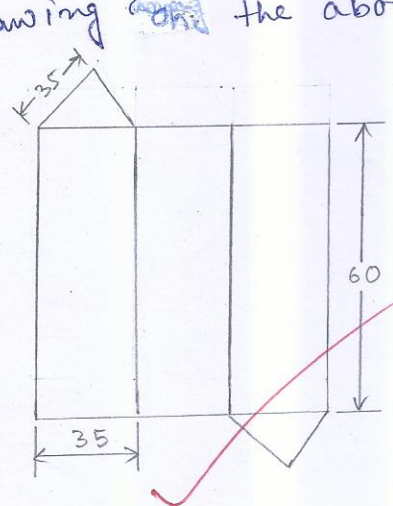
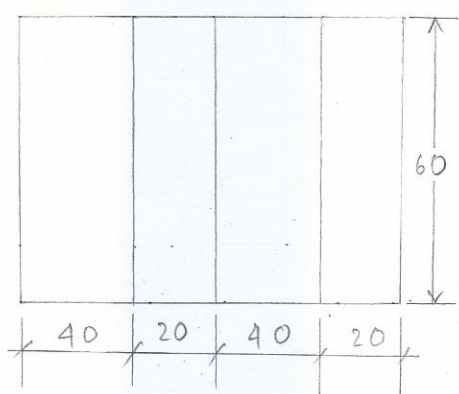
Units type: M ↵ for (Metric)(mm) or A ↵ for (Architectural) [0'0.0"]
 or E ↵ for (Engineering) [0'0.0"]

Scale factor: 100 ↵ for 1:100 scale or 0.5 for 2:1 scale

The paper width: 297 ↵

The paper height: 210 ↵

Then draw any drawing ~~on~~ the above setup.



How to change the scale factor?

Scale: [Modify → Scale]

To work with different scale on a same paper

com: SC ↵

Select object: Select the drawing ↵

Specify base point: click on the base of the object.

Specify scale factor: value ↵

Note: Scale factor = Required scale / Existing Scale

Example → 1:20 / 1:100 = 5 is the factor value.

Drawing Command:

1) Rectangle Command:

com: REC ↵

Specify 1st corner point: Select a point

Specify other corner point: Select another point or @ x, y ↵
[Ex: @ 30, 25 ↵]

2) Circle Command:

com: C ↵

Specify centre point of circle or [2P*/3P*]: click a point as a centre

Specify Radius of the circle: click or value ↵

* 2P ↵ for 2 point circle

Specify 1st point of circle's dia: click

Specify 2nd point of circle's dia: click or value ↵

* 3P ↵ for 3 point circle

Specify 1st point of circle's dia: click on a known point

Specify 2nd point of circle's dia: click on a known point

Specify 3rd point of circle's dia: click on a known point

Osnap Setting: (F3)

Tools → drafting setting

Right click ^{or} osnap bottom from status bar → Setting.

(Then choose osnap, point) → OK ↵

Editing Command:

1) Offset: [Modify → Offset]

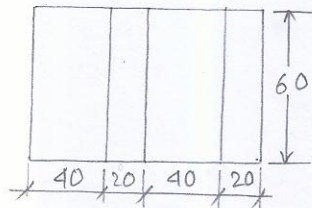
To create a parallel object by perpendicular object is called offset.

Com: O ↵

Specify offset distance: Enter the value ↵

Select object to offset: Click on object.

Specify a point on side of offset: Click on required side of the object, then ↵ or, m ↵ for multiple offset.



@ 120, 60 ↵

2) Region: [Draw → Region]

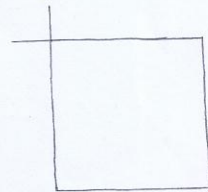
Com: Reg ↵

Select object: Click on a multi-entity closed object, there are no gap or overlapping ↵

Note: To convert, from single entity closed object to multi entity lamina object

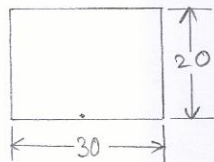


Gap object



Overlapping object

Does not region



@ 30, 20 ↵

3) Explode: [Modify → Explode]

Com: X ↵

Select object: Select the single entity lamina object and then press ↵

Note: To convert from multi entity object to single entity object.

4) Erase: [Modify → Erase]

Com: E ↵

Select object: Select the object ↵

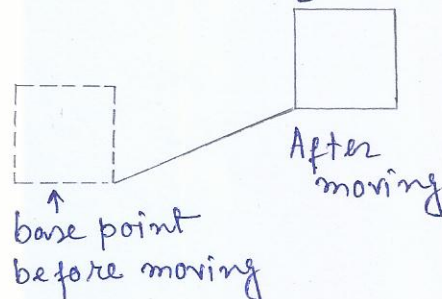
5) Move: [Modify → Move]

Com: M ↵

Select object: Click on the object & select ↵

Specify base point: Click any point on the object as a base point

Specify 2nd base point: Click any another point on the screen [where you want to move the object] Ex:



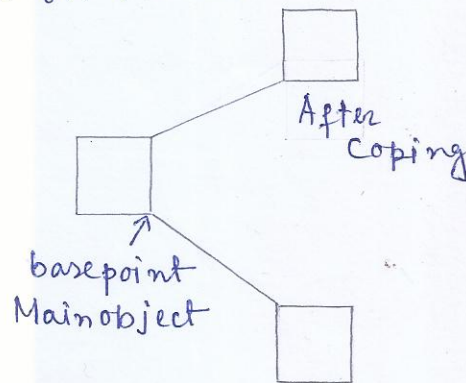
6) Copy: [Modify → Copy]

Com: CO or CP ↵

Select object: Click on the object & select ↵

Specify base point: Click any point on the object as a base point

Specify 2nd base point: Click an another point on the screen [where you want to copy the object] Ex:



7) Extent: [Modify → Extent]

Com: EX ↵

Select object: Select the object to passout the boundary edge.

Select to extent: click on object above 50% towards boundary ↵

Note: Boundary must be exists.

7) Rotate: [Modify → Rotate]

Com: R0 ↵

Select object: Select the object

Specify base point: Click on selected object as a base point.

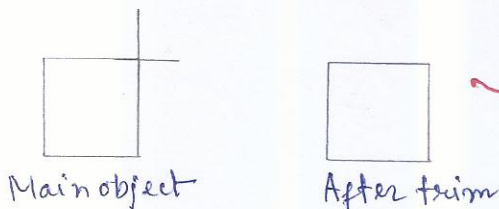
Specify rotation angle: ± Angle value ↵
 (+ ↺) Anticlockwise
 (∠ -) clockwise

8) Trim: [Modify → Trim]

Com: TR ↵

Select object to trim: click on excess objects which is excess either side of the cutting edges ↵

Ex:



9) Mirror: [Modify: Mirror]

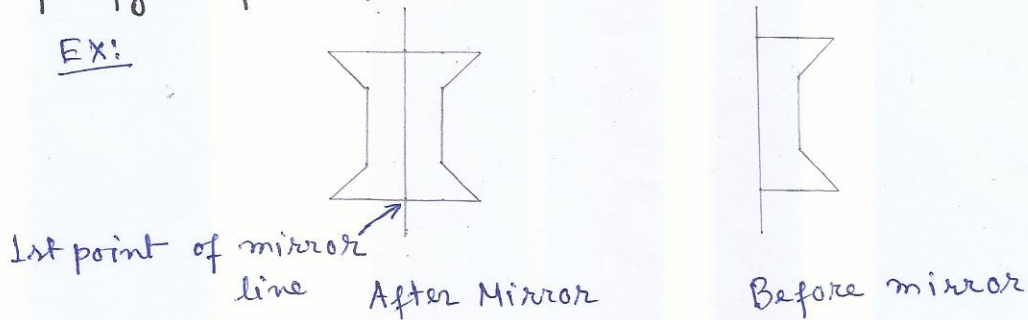
Com: Mi ↵

Select object: Select the object first

Specify 1st point of mirror line: click on end or mid from the selected object.

Specify 2nd point of mirror line: click towards mirror.

EX:



10) Hatch: [Draw → Hatch]

Com: H or BH ↵ [Hatch is a symbol of any material on the station.

Hatch dialog box appears on the screen.

i) click in swatch (sample) box or brows button.

→ choose any hatch pattern → OK.

ii) Add pick points button → click material point on close boundary object.

→ Right click on screen →

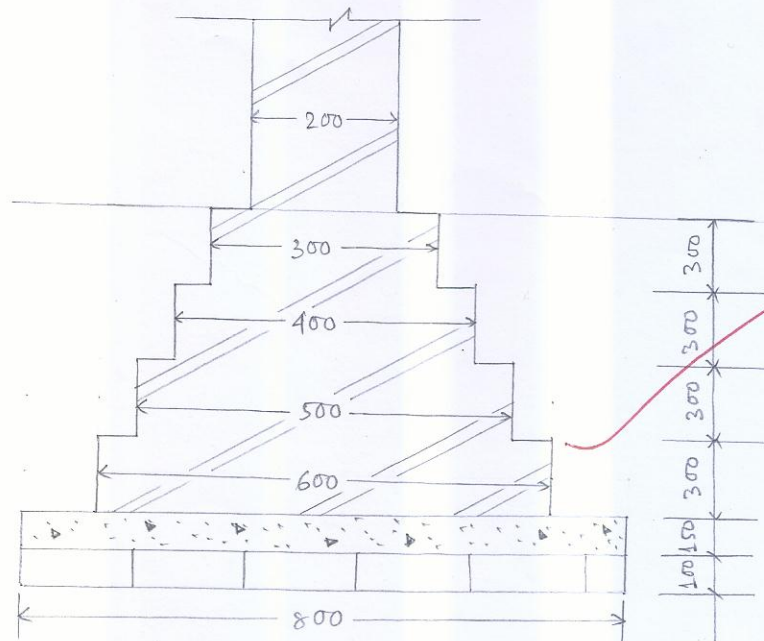
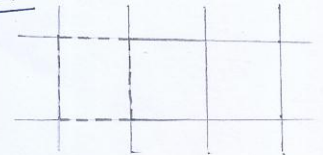
iii) click on screen to return hatch dialog box.

EX:

iv) change angle and scale as per required.

v) Preview

vi) Right click to accept hatch or ↵



Fillet: [Modify → Fillet]

Com: F ↵

Select 1st object or [Radius/Multiple]: R ↵

Specify fillet Radius: Value ↵

Select 1st and 2nd line

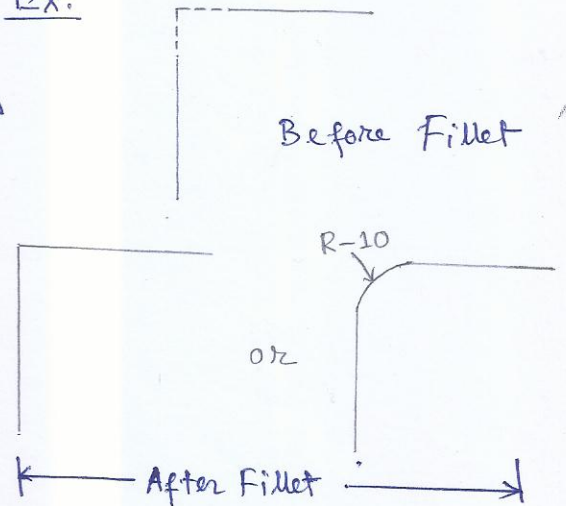
* Undo: [To get the previous object]

Ctrl + Z

* Redo: [To get the forward object]

Ctrl + Y

Ex:



Donut: [Draw → Donut]

[To create a ring or filled circle by donut]

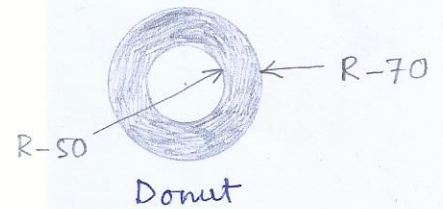
Com: DO ↵

Specify inside dia or donut: Value ↵

Specify outside dia or donut: Value ↵

Specify centre of donut: Click a point on the screen ↵

EX:



Drawing Command:

Polygon:

Com: POL ↵

Specify no. of sides: Value ↵

Specify centre point: ↵

Ellips: [Draw → Ellips]

Com: EL ↵

Specify 2nd point of axis or [centre]: C ↵

Specify centre of ellips: Click on screen as a centre point.

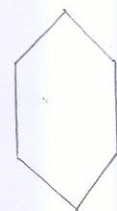
Specify axis end point of ellips: Click or value ↵

Specify distance to other axis: Click or value
(which is unsymmetrical value) ↵

Zoom all: [view → zoom → all]

Com: Z ↵ for zoom then A ↵ for all

[To display total drawing on screen]



Polygon

Distance!

Com: Di ↵

Specify 1st point

Specify 2nd point

Ex:

Array:

Com: Ar ↵

Select object: ↵

r / PO / Pa ↵

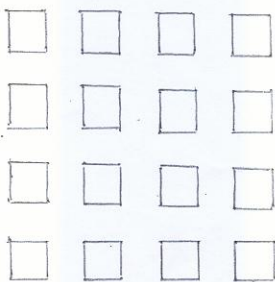
if r ↵

1) Specify no. of row
vs no. of column.

2) Specify distance
between row vs
column.

3) ok.

Ex:



Rectangular
Array

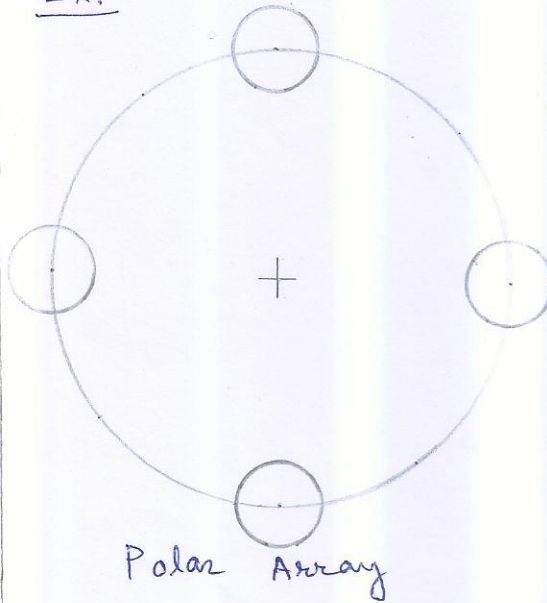
PO ↵

1) Specify centre point of
Item

2) Specify angle to fill

3) Angle between items,
rotate, distance.

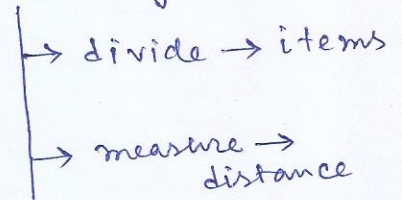
Ex:



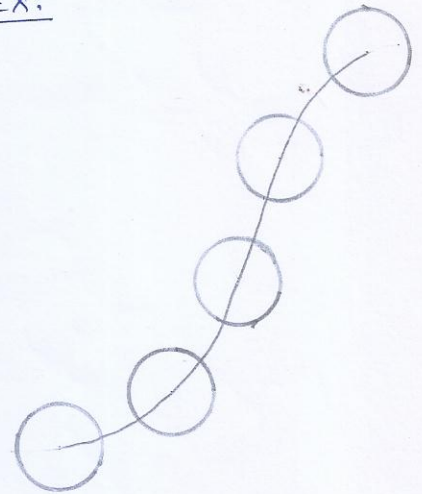
Polar Array

Pa ↵

1) Specify path



Ex:



Path way

Text Command:

1) Text: (for single text only)

Com: T ↵

Specify 1st corner: Click a point on the drawing

Opposit corner: Click the opposit corner point on the
drawing.

⇒ Enter the text → OK.

11) D Text: (For multi text only)

Com: DT ↵

Specify start point:

Specify height: ↵

Specify rotation angle: ↵

Enter the text

Click another place on the screen for next text.

111) Text Edit:

Com: ED ↵

Select the text

Then edit

1V) Text Style:

Com: ST ↵

⇒ A text style dialog box appear on the screen, the create the text style

⇒ Apply → close.

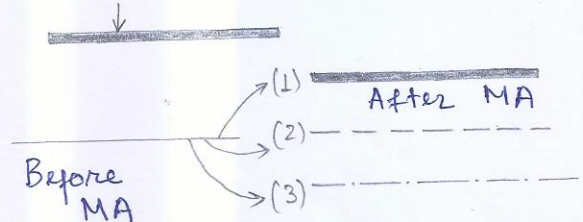
⊗ Match Properties: [For any type of matching an object from another object like colour, width, style etc]

Com: MA ↵

⇒ Select source object

⇒ Select destination object

EX:



⊗ Dimensions:

Com: Di ↵

⇒ Specify 1st point

⇒ Specify 2nd point

1) Linear

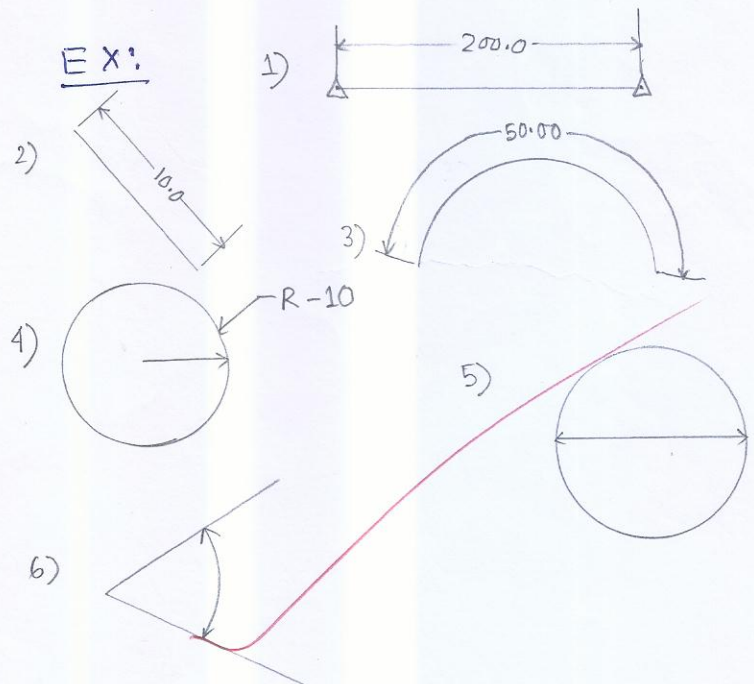
2) Aligned

3) Arc length

4) Radius

5) Diameter

6) Angular



Dimension style: [Dimension → Dimension style]

Com: D ↵

A dimension style dialog box appear on the screen

⇒ Click on the 'Modify' button and then modify any other data.

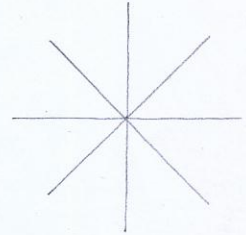
⇒ Click on the 'Set current' button and then click 'OK' button.

⊗ 'X' line:

Com: XL ↵

Specific first point: as a centre point EX:

Specific through point: ↵



⊗ 'SP' Line:

EX:

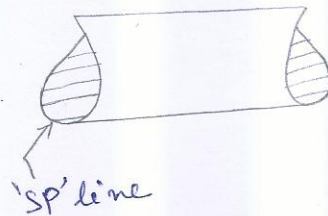
Com: SPL ↵

Specify 1st point

Specify next point

Final exit from

'SP' line ↵ ↵



** How to change a file to PDF from AutoCAD?

Com: ctrl + P

Printer/plotter: Name → DWG TO PDF, PLOT3

Paper size: ISO A4 (210.0 x 297.0 MM) or, A4 (297.0 x 210.0 MM)

Plot area:

What to plot: window ↵

Select the area: Select the area of drawing or object.

Plot offset: Select the center of the plot of the plot-model dialog box

Preview: ↵

Then OK and save the file as Pdf.

~~Adh
26/04/15~~