

## Lab #07(Open Ended)

### Exercise #01: Create the given drawing:

#### Commands:

Command: line  
Specify first point: 2,0.5  
Specify next point or [Undo]: @0,14.75  
Command: line  
Specify first point: 2,15.25  
Specify next point or [Undo]: @4,0  
Specify next point or [Undo]: @0,-14.75  
Command: line  
Specify first point: 2,0.5  
Specify next point or [Undo]: @0.75,0  
Specify next point or [Undo]: @0,2.75  
Command: line  
Specify first point: 2.5,0.5  
Specify next point or [Undo]: @0,2.75  
Command: line  
Specify first point: 6,0.5  
Specify next point or [Undo]: @-0.75,0  
Command: line  
Specify first point: 5.25,0.25  
Specify next point or [Undo]: @14.4,0  
Command: arc  
Specify start point of arc or [Center]:  
Specify second point of arc or [Center/End]: E  
Specify end point of arc:  
Specify center point of arc or [Angle/Direction/Radius]: radius  
Specify radius of arc: 2.75  
Command: \_u POLYGON  
Command: polygon  
Enter number of sides <7>: 7  
Specify center of polygon or [Edge]: 2.8,4.0432  
Enter an option [Inscribed in circle/Circumscribed about circle] <I>: I  
Specify radius of circle: 0.5  
Command: copy  
Select objects: 1 found  
Select objects:  
Specify base point or [Displacement] <Displacement>: Specify second point or  
<use first point as displacement>:  
Command: line  
Specify first point: 2.2842,8.5  
Specify next point or [Undo]: @0,4.5  
Specify next point or [Undo]: @0.2842,0  
Specify next point or [Close/Undo]: @0,-4.5  
Specify next point or [Close/Undo]: @-0.2842,0  
Command: line  
Specify first point: 2.5684,13  
Specify next point or [Undo]: @0.70,0  
Command: line  
Specify first point: 2.5684,8.5  
Specify next point or [Undo]: @0.70,0

Command: line  
Specify first point: 3.7445,12.4767  
Specify next point or [Undo]: @0,-3.5  
Command: fillet  
Select first object or [Undo/Polyline/Radius/Trim/Multiple]: Radius  
Specify fillet radius <0.0000>: 0.5  
Select first object or [Undo/Polyline/Radius/Trim/Multiple]:  
Select second object or shift-select to apply corner:  
Command: fillet  
Select first object or [Undo/Polyline/Radius/Trim/Multiple]: Radius  
Specify fillet radius <0.5000>: 0.5  
Select first object or [Undo/Polyline/Radius/Trim/Multiple]:  
Select second object or shift-select to apply corner:  
Command: line  
Specify first point: 3.7445,12.5  
Specify next point or [Undo]: 4.2445,9.0  
Specify next point or [Undo]: 5.2003,11.7770  
Specify next point or [Close/Undo]: @0,-2.5  
Command: line  
Specify first point:3.7445,9.0  
Specify next point or [Undo]:4.2986,12.5173  
Specify next point or [Undo]:5.2003,9.2770  
Command: line  
Specify first point:4.2986,12.5173  
Specify next point or [Undo]:4.2445,9.000  
Command:line  
Command: \_line Specify first point:3.7445,12.5000  
Specify next point or [Undo]:4.2986,12.5173  
Specify next point or [Undo]:4.7876,11.9799  
Command:line  
Command:\_line Specify first point:3.7445,9.000  
Specify next point or [Undo]:4.2445,9.000  
Specify next point or [Undo]:4.7876,9.4799  
Command: line  
Specify first point: 2,15.4693  
Specify next point or [Undo]: @4.0,0  
Command: line  
Specify first point: 6.25,15.4693  
Specify next point or [Undo]: @9.0,0  
Command: line  
Specify first point: 6.25,15.2693  
Specify next point or [Undo]: @9.0,0  
Specify next point or [Undo]: @0.2,0  
Command: line  
Specify first point: 6.25,0.5193  
Specify next point or [Undo]: @9.2,0  
Specify next point or [Undo]: @0,2.5  
Specify next point or [Close/Undo]: @-9.2,0  
Specify next point or [Close/Undo]: @0,-2.5  
Command: line  
Specify first point: 15.4500,15.2693  
Specify next point or [Undo]: @0,-12.0500  
Command: line  
Specify first point: 15.2500,15.2693  
Specify next point or [Undo]: @0,-12.0500  
Command: line

Specify first point: 15.4500,3.2193  
Specify next point or [Undo]: @-2,0  
Command: line  
Specify first point: 12.4500,3.2193  
Specify next point or [Undo]: @-6.2,0  
Specify next point or [Undo]: @0,3.2  
Command: line  
Specify first point: 6.25,8.9193  
Specify next point or [Undo]: @0,6.3500  
Command: line  
Specify first point: 11.4500,3.2193  
Specify next point or [Undo]: @0,1.75  
Command: arc  
Specify start point of arc or [Center]:13.4500,3.0193  
Specify second point of arc or [Center/End]:e  
Specify end point of arc:11.4500,4.9693  
Specify center point of arc or [Angle/Direction/Radius]:r  
Specify radius of arc: 2.00  
Command: line  
Specify first point: 6.2500,8.9193  
Specify next point or [Undo]: @2.2500,0  
Specify next point or [Undo]: @0,-0.2  
Specify next point or [Close/Undo]: @-2.25,0  
Specify next point or [Close/Undo]: @0,0.2  
Command: line  
Specify first point: 6.2500,8.9193  
Specify next point or [Undo]: @0.2,0  
Specify next point or [Undo]: @0,6.3500  
Specify next point or [Close/Undo]: @0,-0.25  
Specify next point or [Close/Undo]: @8.800,0  
Command: line  
Specify first point: 6.2500,6.4193  
Specify next point or [Undo]: @0.2,0  
Specify next point or [Undo]: @0,-3.2  
Command:arc  
Specify start point of arc or [Center]: 6.25,6.4193  
Specify second point of arc or [Center/End]:e  
Specify end point of arc: 8.5,8.9193  
Specify center point of arc or [Angle/Direction/Radius]:r  
Specify radius of arc: 2.25  
Command: erase  
Select objects: 1 found  
Command: line  
Specify first point: 5.25,0.25  
Specify next point or [Undo]: @10.2,0  
Specify next point or [Undo]: @0,0.2693  
Command: line  
Specify first point: 14,5.5  
Specify next point or [Undo]: 10.5,6.2  
Command: line  
Specify first point: 14,8  
Specify next point or [Undo]: 10.5,7.5  
Command:arc  
Command: \_arc Specify start point of arc or [Center]:  
Specify second point of arc or [Center/End]: \_c Specify center point of arc:  
Specify end point of arc or [Angle/chord Length]:

Command: arc  
Command: \_arc Specify start point of arc or [Center]:  
Specify second point of arc or [Center/End]: \_c Specify center point of arc:  
Specify end point of arc or [Angle/chord Length]:  
Command: copy  
Select objects: Specify opposite corner: 4 found  
Select objects:  
Specify base point or [Displacement] <Displacement>: 10.5,11.5  
Specify second point or <use first point as displacement>:  
Command: rotate  
Current positive angle in UCS: ANGDIR=counterclockwise ANGBASE=0  
Select objects: Specify opposite corner: 4 found  
Specify base point:  
Specify rotation angle or [Copy/Reference] <0>: 90  
Command: copy  
Select objects: Specify opposite corner: 4 found  
Specify base point or [Displacement] <Displacement>: Specify second point or  
<use first point as displacement>:  
Command: erase  
Select objects: 4 found, 4 Total  
Command: circle  
Specify center point for circle or [3P/2P/Ttr (tan tan radius)]:13.2410,13.2724  
Specify radius of circle or [Diameter]: 1.5  
Command: copy  
Select objects: Specify opposite corner: 0 found  
Select objects: 3 found,3 total  
Specify base point or [Displacement] <Displacement>:13.23,10.4  
Command: \_scale  
Select objects: 3 found,3 total  
Select objects:  
Specify base point:13.23,10.4  
Specify scale factor or [Copy/Reference] <1.0000>:  
Command: circle  
Specify center point for circle or [3P/2P/Ttr (tan tan radius)]:13.2,12.8  
Specify radius of circle or [Diameter] <0.3000>: 0.3999  
Command: copy  
Select objects: 1 found  
Specify base point or [Displacement] <Displacement>:13.2,12.05  
Command: erase  
Select objects: 1 found  
Command: array  
Specify center point of array:13.2410,13.2724  
Select objects: 1 found  
Command: circle  
Specify center point for circle or [3P/2P/Ttr (tan tan radius)]: 13.2410,13.2724  
Specify radius of circle or [Diameter] <0.3999>: 1.05  
Command: \_trim  
Current settings: Projection=UCS, Edge=None  
Select cutting edges ...  
Select objects or <select all>: 1 found  
Select objects: 1 found, 2 total  
Select objects: 1 found, 3 total  
Select objects: 1 found, 4 total  
Select objects: 1 found, 5 total  
Select objects: 1 found, 6 total  
Select objects: 1 found, 7 total

Select objects: 1 found, 8 total

Select objects:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Command: circle

Specify center point for circle or [3P/2P/Ttr (tan tan radius)]:8.0181,4.7655

Specify radius of circle or [Diameter] <1.0500>: 1.2527

Command: line

Specify first point: 7.3,0.5

Specify next point or [Undo]: @0,0.25

Specify next point or [Undo]: @2.45,0

Specify next point or [Close/Undo]: @0,-0.25

Command: line

Specify first point: 7.78,1.21

Specify next point or [Undo]: @1.5748,0

Command: line

Specify first point: 15.45,2.5

Specify next point or [Undo]: @-1.50,0

Specify next point or [Undo]: @0,-1.5

Specify next point or [Close/Undo]: @1.5,0

Command: ellipse

Specify axis endpoint of ellipse or [Arc/Center]: -8.5,4.5

Specify other endpoint of axis: @0,0.6734

Specify distance to other axis or [Rotation]:

Command: rotate

Current positive angle in UCS: ANGDIR=counterclockwise ANGBASE=0

Select objects: 1 found

Select objects:

Specify base point:-10.77,4.11

Specify rotation angle or [Copy/Reference] <90>: 90

Command: copy

Select objects: 1 found

Specify base point or [Displacement] <Displacement>: -5,3.6

Command: erase

Select objects: 1 found

Command: line

Specify first point:

Specify next point or [Undo]:

Command: line

Specify first point:

Specify next point or [Undo]:  
Command: line  
Specify first point:  
Specify next point or [Undo]:  
Command: line  
Specify first point:  
Specify next point or [Undo]:  
Command: ellipse  
Specify axis endpoint of ellipse or [Arc/Center]: 7.78,1.21  
Specify other endpoint of axis: @1.5748,0  
Specify distance to other axis or [Rotation]:  
Command: trim  
Current settings: Projection=UCS, Edge=None  
Select cutting edges ...  
Select objects or <select all>: Specify opposite corner: 3 found  
Select objects:  
Select object to trim or shift-select to extend or  
[Fence/Crossing/Project/Edge/eRase/Undo]:  
Select object to trim or shift-select to extend or  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 2.4500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 1.5000  
Command: circle  
Specify center point for circle or [3P/2P/Ttr (tan tan radius)]: 20.5,2.5  
Specify radius of circle or [Diameter] <1.2527>: 0.25  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 1.5000  
Command: copy  
Select objects: 1 found  
Select objects:  
Specify base point or [Displacement] <Displacement>: 16,4  
Command: erase  
Select objects: 1 found  
Command: array  
Specify center point of array:  
Select objects: 1 found  
Command: trim  
Current settings: Projection=UCS, Edge=None

Select cutting edges ...

Select objects or <select all>: Specify opposite corner: 0 found

Select objects or <select all>: Specify opposite corner: 33 found

16 were not a valid edge or selection method.

Select objects: 1 found (1 duplicate), 17 total

Select objects: 1 found (1 duplicate), 17 total

Select objects: 1 found (1 duplicate), 17 total

Select objects: 1 found (1 duplicate), 17 total

Select objects:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]: Specify opposite corner:

No objects crossed by crossing window.

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

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[Fence/Crossing/Project/Edge/eRase/Undo]:

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[Fence/Crossing/Project/Edge/eRase/Undo]:

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[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

Select object to trim or shift-select to extend or

[Fence/Crossing/Project/Edge/eRase/Undo]:

[Fence/Crossing/Project/Edge/eRase/Undo]:



[illegible]



Select object to trim or shift-select to extend or  
[Fence/Crossing/Project/Edge/eRase/Undo]:  
Select object to trim or shift-select to extend or  
[Fence/Crossing/Project/Edge/eRase/Undo]:  
Command: trim  
Current settings: Projection=UCS, Edge=None  
Select cutting edges ...  
Select objects or <select all>: Specify opposite corner: 0 found  
Select objects or <select all>: Specify opposite corner: 13 found  
6 were not a valid edge or selection method.  
Select objects: 1 found, 8 total  
Select objects:  
Select object to trim or shift-select to extend or  
[Fence/Crossing/Project/Edge/eRase/Undo]:  
Select object to trim or shift-select to extend or  
[Fence/Crossing/Project/Edge/eRase/Undo]:  
Command: line  
Specify first point:12.9474,10  
Specify next point or [Undo]:13.3353,10  
Command: line  
Specify first point:13.3353,10  
Specify next point or [Undo]:13.7405,9.5638  
Command: line  
Specify first point:13.7405,9.5638  
Specify next point or [Undo]:13.7405,9.3088  
Command: line  
Specify first point:13.7405,9.3088  
Specify next point or [Undo]:13.3353,8.8110  
Command: line  
Specify first point:13.3353,8.8110  
Specify next point or [Undo]:12.9474,8.8110  
Command: line  
Specify first point:12.9474,8.8110  
Specify next point or [Undo]:12.5980,9.3088  
Command: line  
Specify first point:12.5980,9.3088  
Specify next point or [Undo]:12.5980,9.59808  
Command: line  
Specify first point:12.5980,9.59808  
Specify next point or [Undo]:12.9474,10  
Command: hatch  
Select objects or [picK internal point/remove Boundaries]:1 found  
Select objects or [picK internal point/remove Boundaries]:1 found, 2 total  
Select objects or [picK internal point/remove Boundaries]:1 found, 3 total  
Select objects or [picK internal point/remove Boundaries]:1 found, 4 total  
Select objects or [picK internal point/remove Boundaries]:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Command:extrim  
Specify the side to trim on:  
Command: Specify opposite corner:  
Command:extrim  
Specify the side to trim on:

Command: Specify opposite corner:  
Command: hatch  
Select objects or [picK internal point/remove Boundaries]:1 found  
Select objects or [picK internal point/remove Boundaries]:1 found, 2 total  
Select objects or [picK internal point/remove Boundaries]:Specify opposite corner: 1 found, 3 total  
Select objects or [picK internal point/remove Boundaries]:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Pick or press Esc to return to dialog or <Right-click to accept hatch>:  
Command: explode  
Select objects: 1 found  
Select objects:  
Hatch boundary associativity removed.  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 2.7500  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Object selected is not a circle or arc.  
Select arc or circle:  
Dimension text = 1.3126  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 0.6331  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 0.6331  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 2.2500  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 1.3126  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command: \_dimradius

Select arc or circle:  
Dimension text = 0.3999  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 1.5000  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 0.2500  
Specify dimension line location or [Mtext/Text/Angle]:  
Command:  
Command:  
Command: \_dimradius  
Select arc or circle:  
Dimension text = 2.0000  
Specify dimension line location or [Mtext/Text/Angle]:  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 0.5000:  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 0.7500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 14.7500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 13.2500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 4.0000  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:

Dimension text = 9.0000  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 4.5000  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 2.5000  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 1.7500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 2.2500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 0.2500  
Command: \_dimaligned  
Specify first extension line origin or <select object>:  
Specify second extension line origin:  
Specify dimension line location or  
[Mtext/Text/Angle]:  
Dimension text = 0.2000

**Output:**