```python
0    ########################################
1    ########################################
2
3    #ASSIGNMENT_1
4    #NAME: Maho Kobayashi
5
6    ########################################
7    ########################################
8
9    #INSTRUCTIONS:
10   ##All work should be done as 2D LINE WORK
11   ##Format as LETTER SIZE (8.5" X 11") in LANDSCAPE
12   ##Pay special attention to your LINE WIDTH
13   ##Submit as a SINGLE PDF FILE, not neccesarily 1 pg
14   ##First PNG/JPG in attachments will be cover image
15
16   #DELIVERABLES:
17   ##PDF
18   ##code (saved in RTF = Rich Text Format)
19   ##both(?)should be uploaded to the Gallery Site
20
21   #RHINOSCRIPT REFERENCES:
22   #https://developer.rhino3d.com/
23   ##rs.GetObject()_IN######rs.GetInteger()########rs.GetReal()
24   ##rs.AddLine()_IN#########rs.AddPoint()_IN
25   ##rs.PointCoordinates()###rs.RotateObject()_IN##rs.ScaleObject()_IN
26   ###rs.MoveObject()_IN#####rs.CopyObject()_IN
27
28   ########################################
29   ########################################
30
31   #BRING IN LIBRARIES
32   import rhinoscriptsyntax as rs
33
34   ##############################
35
36   #STEP_0: ADDING CENTER POINT (cntr_pt)
37   cntr_pt0 = rs.AddPoint(0,0,0)
38
39   #STEP_1: CREATING LINE (line_0)
40   startpt_0 = [0,0.25,0]
41   endpt_0 = [0,0.75,0.5]
42   line_0a = rs.AddLine(startpt_0, endpt_0)
43
44
45   #STEP_2: ROTATING AND COPYING LINE_0
46   ##line_? = rs.RotateObject(the line, mid pt of the line, ,None,
     Copy_t/f)
47   line_1a = rs.RotateObject(line_0a,cntr_pt0,45,None,True)
48   line_2a = rs.RotateObject(line_0a,cntr_pt0,90,None,True)
49   line_3a = rs.RotateObject(line_0a,cntr_pt0,135,None,True)
50   line_4a = rs.RotateObject(line_0a,cntr_pt0,180,None,True)
51   line_5a = rs.RotateObject(line_0a,cntr_pt0,-45,None,True)
52   line_6a = rs.RotateObject(line_0a,cntr_pt0,-90,None,True)
53   line_7a = rs.RotateObject(line_0a,cntr_pt0,-135,None,True)
54
55
56
```

```python
56  #STEP_3: SELECTING CURVE_0 TO ROTATE
57  curve_0a= rs.GetObject('select curve', rs.filter.curve)
58
59
60  #STEP_4: ROTATING AND COPYING CURVE_0
61  curve_1a  =  rs.RotateObject(curve_0a,cntr_pt0,45,None,True)
62  curve_2a  =  rs.RotateObject(curve_0a,cntr_pt0,90,None,True)
63  curve_3a  =  rs.RotateObject(curve_0a,cntr_pt0,135,None,True)
64  curve_4a  =  rs.RotateObject(curve_0a,cntr_pt0,180,None,True)
65  curve_5a  =  rs.RotateObject(curve_0a,cntr_pt0,-45,None,True)
66  curve_6a  =  rs.RotateObject(curve_0a,cntr_pt0,-90,None,True)
67  curve_7a  =  rs.RotateObject(curve_0a,cntr_pt0,-135,None,True)
68
69
70  #STEP_5: SCALE EVERYTHING FROM STEP 0 - 6
71
72  line_0a_2 = rs.ScaleObject(line_0a,  cntr_pt0,  (1.5,1.5,1.5),  True)
73  line_1a_2 = rs.ScaleObject(line_1a,  cntr_pt0,  (1.5,1.5,1.5),  True)
74  line_2a_2 = rs.ScaleObject(line_2a,  cntr_pt0,  (1.5,1.5,1.5),  True)
75  line_3a_2 = rs.ScaleObject(line_3a,  cntr_pt0,  (1.5,1.5,1.5),  True)
76  line_4a_2 = rs.ScaleObject(line_4a,  cntr_pt0,  (1.5,1.5,1.5),  True)
77  line_5a_2 = rs.ScaleObject(line_5a,  cntr_pt0,  (1.5,1.5,1.5),  True)
78  line_6a_2 = rs.ScaleObject(line_6a,  cntr_pt0,  (1.5,1.5,1.5),  True)
79  line_7a_2 = rs.ScaleObject(line_7a,  cntr_pt0,  (1.5,1.5,1.5),  True)
80
81  curve_0a_2 = rs.ScaleObject(curve_0a,  cntr_pt0,  (1.5,1.5,1.5),  True)

82  curve_1a_2 = rs.ScaleObject(curve_1a,  cntr_pt0,  (1.5,1.5,1.5),  True)

83  curve_2a_2 = rs.ScaleObject(curve_2a,  cntr_pt0,  (1.5,1.5,1.5),  True)

84  curve_3a_2 = rs.ScaleObject(curve_3a,  cntr_pt0,  (1.5,1.5,1.5),  True)

85  curve_4a_2 = rs.ScaleObject(curve_4a,  cntr_pt0,  (1.5,1.5,1.5),  True)

86  curve_5a_2 = rs.ScaleObject(curve_5a,  cntr_pt0,  (1.5,1.5,1.5),  True)

87  curve_6a_2 = rs.ScaleObject(curve_6a,  cntr_pt0,  (1.5,1.5,1.5),  True)

88  curve_7a_2 = rs.ScaleObject(curve_7a,  cntr_pt0,  (1.5,1.5,1.5),  True)

89
90
91  #STEP_6: ADDING ANOTHER CENTER POINT MOVED UP 0.5
92  cntr_pt1 = rs.AddPoint(0,0,0.5)
93
94
95  #STEP_7: OVER-WRITE POINT VARIABLES WITH VALUES
96  ptFrm_0 = rs.PointCoordinates(cntr_pt1)
97  ptTo_0 = rs.PointCoordinates(cntr_pt0)
98
99
100 #STEP_8: MOVING EVERYTHING IN STEP 1- 4 UP 0.5
101
102 translation = ptFrm_0 - ptTo_0
103 #this calculate how much to move everything and in what direction
104
```

```
104
105  line_0a  =  rs.MoveObject(line_0a,  translation)
106  line_1a  =  rs.MoveObject(line_1a,  translation)
107  line_2a  =  rs.MoveObject(line_2a,  translation)
108  line_3a  =  rs.MoveObject(line_3a,  translation)
109  line_4a  =  rs.MoveObject(line_4a,  translation)
110  line_5a  =  rs.MoveObject(line_5a,  translation)
111  line_6a  =  rs.MoveObject(line_6a,  translation)
112  line_7a  =  rs.MoveObject(line_7a,  translation)
113
114  curve_0a  =  rs.MoveObject(curve_0a,  translation)
115  curve_1a  =  rs.MoveObject(curve_1a,  translation)
116  curve_2a  =  rs.MoveObject(curve_2a,  translation)
117  curve_3a  =  rs.MoveObject(curve_3a,  translation)
118  curve_4a  =  rs.MoveObject(curve_4a,  translation)
119  curve_5a  =  rs.MoveObject(curve_5a,  translation)
120  curve_6a  =  rs.MoveObject(curve_6a,  translation)
121  curve_7a  =  rs.MoveObject(curve_7a,  translation)
122
123
124  #STEP_9:  ROTATING  EVERYTHING  IN  STEP  8
125
126  line_0a  =  rs.RotateObject(line_0a,cntr_pt0,22.5,None,False)
127  line_1a  =  rs.RotateObject(line_1a,cntr_pt0,22.5,None,False)
128  line_2a  =  rs.RotateObject(line_2a,cntr_pt0,22.5,None,False)
129  line_3a  =  rs.RotateObject(line_3a,cntr_pt0,22.5,None,False)
130  line_4a  =  rs.RotateObject(line_4a,cntr_pt0,22.5,None,False)
131  line_5a  =  rs.RotateObject(line_5a,cntr_pt0,22.5,None,False)
132  line_6a  =  rs.RotateObject(line_6a,cntr_pt0,22.5,None,False)
133  line_7a  =  rs.RotateObject(line_7a,cntr_pt0,22.5,None,False)
134
135  curve_0a  =  rs.RotateObject(curve_0a,cntr_pt0,22.5,None,False)
136  curve_1a  =  rs.RotateObject(curve_1a,cntr_pt0,22.5,None,False)
137  curve_2a  =  rs.RotateObject(curve_2a,cntr_pt0,22.5,None,False)
138  curve_3a  =  rs.RotateObject(curve_3a,cntr_pt0,22.5,None,False)
139  curve_4a  =  rs.RotateObject(curve_4a,cntr_pt0,22.5,None,False)
140  curve_5a  =  rs.RotateObject(curve_5a,cntr_pt0,22.5,None,False)
141  curve_6a  =  rs.RotateObject(curve_6a,cntr_pt0,22.5,None,False)
142  curve_7a  =  rs.RotateObject(curve_7a,cntr_pt0,22.5,None,False)
143
144
145  #STEP_10:  SELECTING  CIRCLE_0  TO  COPY  AND  ROTATE
146
147  circle_0  =  rs.GetObject('select  circle',  rs.filter.curve)
148
149  circle_1  =  rs.CopyObject(circle_0)
150  circle_1  =  rs.RotateObject(circle_1,cntr_pt1,11.25,None,False)
151
152  circle_2  =  rs.CopyObject(circle_1)
153  circle_2  =  rs.RotateObject(circle_2,cntr_pt1,11.25,None,False)
154
155  circle_3  =  rs.CopyObject(circle_2)
156  circle_3  =  rs.RotateObject(circle_3,cntr_pt1,11.25,None,False)
157
158  circle_4  =  rs.CopyObject(circle_3)
159  circle_4  =  rs.RotateObject(circle_4,cntr_pt1,11.25,None,False)
160
161
```

```
161  circle_5  =  rs.CopyObject(circle_4)
162  circle_5  =  rs.RotateObject(circle_5,cntr_pt1,11.25,None,False)
163
164  circle_6  =  rs.CopyObject(circle_5)
165  circle_6  =  rs.RotateObject(circle_6,cntr_pt1,11.25,None,False)
166
167  circle_7  =  rs.CopyObject(circle_6)
168  circle_7  =  rs.RotateObject(circle_7,cntr_pt1,11.25,None,False)
169
170  circle_8  =  rs.CopyObject(circle_7)
171  circle_8  =  rs.RotateObject(circle_8,cntr_pt1,11.25,None,False)
172
173  circle_9  =  rs.CopyObject(circle_8)
174  circle_9  =  rs.RotateObject(circle_9,cntr_pt1,11.25,None,False)
175
176  circle_10  =  rs.CopyObject(circle_9)
177  circle_10  =  rs.RotateObject(circle_10,cntr_pt1,11.25,None,False)
178
179  circle_11  =  rs.CopyObject(circle_10)
180  circle_11  =  rs.RotateObject(circle_11,cntr_pt1,11.25,None,False)
181
182  circle_12  =  rs.CopyObject(circle_11)
183  circle_12  =  rs.RotateObject(circle_12,cntr_pt1,11.25,None,False)
184
185  circle_13  =  rs.CopyObject(circle_12)
186  circle_13  =  rs.RotateObject(circle_13,cntr_pt1,11.25,None,False)
187
188  circle_14  =  rs.CopyObject(circle_13)
189  circle_14  =  rs.RotateObject(circle_14,cntr_pt1,11.25,None,False)
190
191  circle_15  =  rs.CopyObject(circle_14)
192  circle_15  =  rs.RotateObject(circle_14,cntr_pt1,11.25,None,False)
193
194  ####################################
195  ####################################
```