

# **INSTRUCTIONS NOTES: AUTOMATION WITH PYTHON COMPUTER LANGUAGE**

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**@REFERENCE:** <https://docs.python.org/3/library/turtle.html>; LAST ACCESSED: 20200713

**INSTRUCTIONS NOTES: AUTOMATION WITH PYTHON COMPUTER LANGUAGE**

**1) MATHEMATICAL OPERATIONS (SMALL NUMBERS, I.E. MAX OF 3 DIGITS FOR AN INPUT NUMBER)**

```
>>> 1+1
2
>>> 100 - 20
80
>>> 350 * 2
700
>>> 10 / 3.0
3.3333333333333335
```

**2) MATHEMATICAL OPERATIONS (LARGE NUMBERS, I.E. MORE THAN 3 DIGITS FOR AN INPUT NUMBER)**

```
>>> 123456 + 123456
246912
>>> 123456 - 111111
12345
>>> 2100 * 0.12
252.0
>>> 2352 / 1.12
2100.0
```

**3) CONTAINERS: VARIABLES**

```
>>> x = 2
>>> print(x)
2
>>> x = x + 1
>>> print(x)
3
```

**4) CONDITIONS & BRANCHING**

```
>>> classification = "Senior Citizen"
>>> if (classification == "Senior Citizen"):
>>>     print("Kumusta po!")
>>> else:
>>>     print("Kumusta!")
Kumusta po!
```

**5) LOOPS**

```
>>> iCount = 1
>>> while iCount <= 20:
>>>     print(iCount)
>>>     iCount = iCount + 1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

**6) CONTAINERS: ARRAYS/LISTS**

```
>>> list = ["saging"]
>>> print(list)
['saging']
>>> list = list + ["buko"]
>>> print(list)
['saging', 'buko']
>>> print(list[0])
saging
>>> print(list[1])
buko
>>> list.remove("buko")
>>> print(list)
['saging']
>>> del(list[0])
>>> print(list)
[]
```

**7) GRAPHICS & SHAPES**

**7.1) SQUARE**

```
>>> import turtle
>>> turtle.forward(60)
>>> turtle.left(90)
>>> turtle.forward(60)
>>> turtle.left(90)
>>> turtle.forward(60)
>>> turtle.left(90)
>>> turtle.forward(60)
```

**7.2) TRIANGLE**

```
>>> import turtle
>>> turtle.forward(60)
>>> turtle.left(90)
>>> turtle.forward(60)
>>> turtle.left(90)
>>> turtle.left(45)
>>> 60**2
3600
>>> 3600*2
7200
>>> import math
>>> math.sqrt(7200)
84.8528137423857
>>> turtle.forward(84.85)
```

**7.3) CIRCLE**

```
>>> import turtle
>>> turtle.circle(100)
>>> turtle.reset()
>>> turtle.circle(100, None, 3) #output: triangle
>>> turtle.reset()
>>> turtle.circle(100, None, 2) #output: line
>>> turtle.reset()
>>> turtle.circle(100, None, 4) #output: square
>>> turtle.reset()
>>> turtle.circle(100, None, 5) #output: five (5) points/vertices and sides
>>> turtle.reset()
>>> turtle.circle(100, None, 12) #output: twelve (12) points/vertices and sides
>>> turtle.reset()
>>> turtle.circle(100, 180, 12) #output: half (1/2) circle drawn using a shape with twelve (12) points/vertices and sides
>>> turtle.reset()
>>> turtle.circle(100, 360, 12) #output: one (1) circle drawn using a shape with twelve (12) points/vertices and sides
```