Chapter 3 Mathematical Functions, Strings, and Objects

1.

```
(a) math.sqrt(4) = 2.0
(b) math.sin(2 * math.pi) = 0
(c) math.cos(2 * math.pi) = 1
(d) min(2, 2, 1) = 1
(e) math.log(math.e) = 1
(f) math.exp(1) = 2.71
(g) max(2, 3, 4)) = 4
(h) abs(-2.5) = 2.5
(i) math.ceil(-2.5) = -2
(j) math.floor(-2.5) = -3
(k) round(3.5) = 4
(l) round(-2.5) = -2
(m) math.fabs(2.5) = 2.5
(n) math.ceil(2.5) = 3
(o) math.floor(2.5) = 2
(p) round(-2.5) = -2
(q) round(2.6) = 3
(r) round(math.fabs(-2.5)) = 2
```

2.
True

3.
```
r = math.radians(47)
```

4.
```
r = math.degrees(math.pi / 7)
```

5.
```
code = ord('1')
code = ord('A')
code = ord('B')
code = ord('a')
code = ord('b')

ch = chr(40)
ch = chr(59)
ch = chr(79)
ch = chr(85)
ch = chr(90)
```

6.
```
print("\\")
print("\"")
```

7.
\u0078

8.
D

9.
25

10.

```
title = "chapter " + str(1)
```

11.

```
5
23
```

12.

An object is an entity such as a number, a string, a student, a desk, and a computer. Each object has an id and a type. Objects of the same kind have the same type.

You can perform operations on an object. The operations are defined using functions. The functions for the objects are called *methods* in Python

13.

To find the id for an object, use the id(object) function. To find the type for an object, use the type(object) function.

14.

(b)

15.

```
s.lower() is "\tgeorgia\n"
s.upper() is "\tGEORGIA\n"
```

16.

```
s.strip() is "Good\tMorning"
```

17.

```
The return returned from invoking the format function is a
string.
```

18.

```
The width is automatically increased to accommodate the size of
the actual value.
```

19.

```
   57.468
12345678.9
57.40
     57.40
```

20.

```
5.747e+01
  1.2e+07
5.74e+01
  5.74e+01
```

21.

```
 5789.468
5789.468
5789.40
5789.40
  5789.40
```

22.

```
  45.747%
45.747%
```

23.

```
   45
45
   2d
2d
```

24.

```
Programming is fun
Programming is fun
       Programming is fun
```

25.

```
turtle.home()
```

26.

```
turtle.dot(3, "red")
```

27.

```
Draw a square
```

28.

```
turtle.speed(number) # Set a number between 1 to 10, the larger, the
faster
```

29.

```
turtle.undo()
```

30.

```
turtle.color("red")
```

31.

```
turtle.begin_fill()

turtle.color("red")
turtle.circle(40, steps = 3) # Draw a triangle
...

turtle.end_fill()
```

32.

```
turtle.hide()
```