1 The method call, `random(256)` will generate a random value between 0 and 255. Create a Processing program that will generate and store three random values for red, green, and blue and draw a circle using this random colour as its fill. Run your program multiple times to observe the random fill colour. (1)

2 Explain which data type you'd use to store each of the following pieces of information. (1)

(a) The year you are graduating from high school,

(b) The area of a given triangle,

(c) Whether or not you are taking a Computer Science course.

3 Use the following code fragment to answer each of the following questions. (2)

```
int n = 50.7;
```

(a) What error is reported when you run this code fragment?

(b) On the other hand, a statement like: `float n = 50;` runs without an error. Why do you think initializing an integer variable to a float causes an error while doing the reverse does not?

4 The `int()` method will accept a non-integer parameter and attempt to convert it into an integer. For instance, `int(4.7)` will return the integer value of `4`. Create a Processing sketch to `print()` the result of `int('a')`. What do you think the printed value indicates? Print a number of other characters to test your claim. (2)

5 Using a `float` variable, `dartBoardScale`, modify your dartboard drawing program from Assignment #2 so that it will scale by a factor of `dartBoardScale`. That is, `dartBoardScale=0.5` will produce a dartboard half the size of the original, while `dartBoardScale=2.0` will produce one double in size. (4)

Note: Do not use the Processing `scale()` method as this has additional undesirable effects.

6 Complete each of the following exercises. (6)

(a) Use two integer variables, `beeX` and `beeY`, to represent the center of the Processing Bee's head. Modify all other x and y values in your Processing Bee program to reference `beeX` and `beeY`.
Note: Use the Processing Bee program you created in Assignment #2 as the basis for this, but keep your old program. You'll need it for the next question.

(b) Use the Processing reference for the `translate()` method (https://processing.org/reference/translate_.html) to accomplish the same task as in part (a).

(c) How does your implementation differ from what Processing does with the `translate()` method? What potential pros and cons exist for using each of these methods?