

NAME: _____

THIS IS PARTS FROM SEVERAL DIFFERENT EARLIER TESTS TO SHOW WHAT KINDS OF THINGS GET ASKED.

This exam fits in a normal 50 minute class period but you will probably get to stay for 55min. Do forget semicolons at the end of statements! Write LARGE and legibly. If I can't read it I will count it as wrong.

1. (xx pts) Short answer (only a few words). Be clear and not vague!
 - a. Unlike NetLogo, Processing requires that you declare what about each variable you are going to use?
 - b. What is the name of the function used to initialize a Processing program?
 - c. What is the name of the function used to repeatedly display a set of graphics by executing the function at a specific frameRate?
 - d. In default mode, does Y get larger as you go toward the top of the window or smaller?

2. (xx pts)

When we do software development we carefully think about what we want the code to do next, then we edit our code to add that little bit of functionality. Then what is the next thing we do?

3. (xx pts)
 - a. Write a statement that declares the variables x , y , and z to be able to contain floating point numbers.
 - b. Write a statement that declares the variables x , y , and z to be able to contain true or false values.
 - c. Write a statement that assigns to x the value of the remainder when y is divided by 10.
 - d. Assuming you are in RGB mode, write an expression that gives the color green. That is, it has no blue or red and green is completely "on". (HINT: the result if of type color.)

- e. Assuming you are in HSB mode and you have `color(137, 0, 0)` what color is it?
 - f. Write a statement that creates a canvas that is 355 pixels in the x direction and 113 pixels in the y direction.
 - g. Give the statement that sets the color scheme to HSB.
 - h. Give the statement will set the frame rate to once per second?
 - i. What statement will draw a line from the point (10, 20) to the point (30, 40)?
 - j. What statement will set the thickness of a line to 4 pixels like we did for the hour hand?
 - k. What statement will set the color of the next drawn lines to the color stored in the variable `lineColor`?
 - l. Declare a variable `myColor` to be of a type that can contain a color. Then set `myColor` to be the color green assuming you are in RGB Mode.
 - m. What statement will increment the value in the variable `"zanzibar"`?
4. (xx pts) Give the statements that draw a rectangle in the upper left-hand corner of the window and size in the x direction of 10 and y direction of 20. The interior color is stored in variable `rectColor` make sure the rectangle is that color. Make sure there is no outline on the rectangle. (HINT: the rectangle's position is in the upper left-hand corner so what coordinate is that?)
5. (xx pts) Give the statements that draw a rectangle with the lower right-hand corner and size in the x direction of 10 and y direction of 20. There is no interior coloring and the outline is the color that is stored in the variable `Orange`. `Orange` is of type color. (HINT: the rectangle's position is in the lower right-hand

11. (xx pts) Write the code that will define a function called circle. It will take four arguments: an x, y location that are floats and a size that is also a float and a color. It will draw a circle at that location and of that size and color.

12. (xx pts) Assume HSB. Write a function called colorAngle that will take one argument that is an angle in degrees and convert it to a color whose hue ranges from 0 to 255 as the angle goes from 0 to 360. It should return the color.

13. (xx pts) Write the code that will put the text “dogs and cats” at location (100, 200) of size 50. The text will be of color FlamingRed (assume FlamingRed has been defined of type color). The text will be centered left and right and top and bottom around the location you are displaying it.

14. (xx pts) Assume a function:

```
void circle(float x, float y, float diam, color c, String msg, boolean onOff)
```

Give an example of a call to circle with the correct syntax. Your example should demonstrated the right types in the call for all the arguments.

15. (xx pts) Write a function called cincoDeMayo that takes an integer argument and returns 5 times that as the value. (HINT: remember that you have to get all the types declared in the function definition and to return a value you use the return statement which is the keyword return followed by the value to be returned.)

16. (xx pts) Write a loop that will call function myStuff() 173 times.

17. (xx pts) Now for the big finish:

Declare an integer variable *cint*.

Set *cint* to 0.

Write nested loops for integers *x* and *y*.

The *x* loop should go between 0 and up to but not including 160 in steps of 10.

The *y* loop should go between 0 and up to but not including 160 in steps of 10.

Inside both loops: Set the fill color to *cint*. This will make a gray scale.

Draw a square of size 10 at location *x, y*.

Increment *cint*.