

**Multiple Choice:** /\* 2 points each \*/

\_\_\_\_\_ 1. How could the mathematical test  $\text{radius} \leq 100$  be written in a Processing if statement?

- A) `if ( radius < 100) {`                      C) `if ( radius <= 100) {`  
B) `if (radius =< 100 ) {`                    D) `if ( radius < || = 100) {`  
E) None of these

\_\_\_\_\_ 2. What does the test in the statement `if ( x != 0 )` mean?

- A) x is equal to zero                      C) x might or might not be equal to zero  
B) x is not equal to zero                D) x is REALLY REALLY equal to zero  
E) None of these

**Short Answer:**

1. Type up this code in Processing and run the program. Explain, line by line, what Processing is doing: /\* 6 points \*/

```
int score = 15*4; _____  
String grade = "Fail"; _____  
if ( score >= 60 ) { _____  
    grade = "Pass"; } _____  
print( "Grade is " ); _____  
println( grade ); _____
```

2. Explain why Processing prints what it does for each of the following code fragments. Start by typing in what comes after a) and then typing in the if statement with the rest of the code. Then remove the first two lines and replace them with the two lines from part b). /\* 2 points for each part \*/

a) `int a = 2;`  
   `int b = 6;`

b) `int a = 7;`  
   `int b = 3;`

```
if ( a <= 5 ) {  
    b = b + a;  
}  
print("b = ");  
println(b);
```

Part a:

Part b:

*Short Answer (continued):*

3. Fill in the blank in this program so that it prints whether or not the value of the variable age is at least 21. /\* 3 points \*/

```
if ( _____ ) {  
    print( age );  
    println(" is at least 21");  
}  
else {  
    print( age );  
    println(" is under 21");  
}
```

4. Answer the questions about the following Processing code: /\* 4 points \*/

```
int x1, x2, x3;  
x1 = 100;  
x2 = 2 * x1 - 20;  
x3 = x2 / 10 + 10;  
if ( x1 > x2 ) {  
    ellipse(100, 100, 100, 100);  
}  
else if ( x2 < x3 ) {  
    rect(100, 100, 100, 100);  
}  
else {  
    rect(100, 100, 300, 30);  
}  
ellipse(300, 100, 100, 100);
```

- a) What is the value of x2?
- b) What is the value of x3?
- c) Which of the if-else options will execute?
- d) Explain why the sketch looks like it does.
5. Shirts are on sale for \$10 each if more than three are purchased, and \$12 each otherwise. Write an if statement that prints the total amount of money due for the sale of `numSold` shirts. SAVE THIS IN A PROCESSING .PDE FILE AND UPLOAD TO D2L. /\* 4 points \*/