

Quiz 4 – Winter 2013

1. What does the following program print?

```
void setup(){
    int x = 10;
    timesTwo(x);
    println(x);
}
```

```
void timesTwo(int x){
    x = x * 2;
    println(x);
}
```

- A. 20, 10
B. 20, 20

2. Fill in the blank so that this function returns true if the circle at x1, y1, with radius r1, has collided with the circle at x2, y2, with radius r2.

```
boolean collided(int x1, int y1, int r1, int x2, int y2, int r2){
    return _____;
}
```

- A. `dist(x1, y1, x2, y2) >= r1+r2`
B. `abs(x1-x2) >= r1+r2 && abs(y1-y2) >= r1+r2`
C. A and B will both work
D. Neither A nor B work but one would be correct if the `>=` was `<=`
E. Neither A nor B work but both would be correct if the `>=` was `<=`

3. What is the first word printed by the program to the right?

- A. func1
B. func2
C. func3

4. What is the last number printed by the program to the right?

- A. 5
B. 105
C. 205
D. 210
E. 310

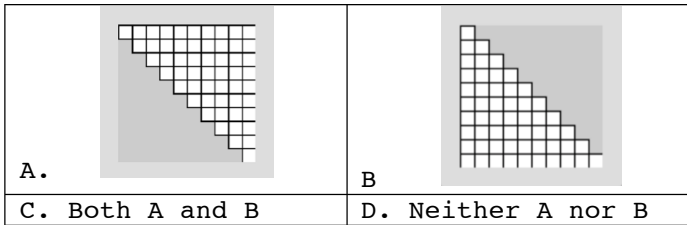
```
void setup() {
    func1(func2(func3(5)));
}
void func1(int x) {
    println("func1 " + x);
}
int func2(int x) {
    println("func2 " + x);
    return func3(2*x);
}
int func3(int x) {
    println("func3 " + x);
    return x+100; }
}
```

5. What expression can you put in the blank so this program shows a circle falling from the top center to the middle and then moving diagonally towards the lower right corner?

```
int ballX=50, ballY=0;
void draw(){
    background(120);
    ballX = ballX + _____;
    ballY++;
    ellipse(ballX, ballY, 20, 20);
}
```

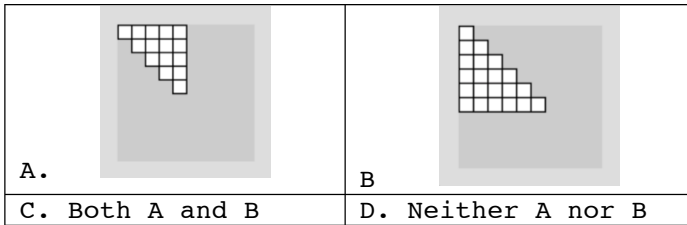
- A. `frameCount%50`
B. `(1-(ballY/50))`
C. `(1-(frameCount/100))`
D. `ballY/50`
E. `ballX/50`

6. Which of the images below could be produced by the code at the right?



```
void setup(){
  frameRate(10);
}
int maxXY=0;
void draw() {
  background(255);
  if (maxXY > width) maxXY = 0;
  for(int y=0; y<maxXY; y=y+10) {
    for(int x=y; x<maxXY; x=x+10){
      rect(x, y, 10, 10);
    }
  }
  maxXY = maxXY + 10;
}
```

7. Which of the images below could be produced by the code at the right?



8. What does this program print?

- A. true, true, false
- B. true, false, false
- C. false, false, true
- D. false, true, true
- E. false, false, false

```
void setup(){
  println(mystery(10,20,30));
  println(mystery(20,30,10));
  println(mystery(30,20,10));
}
boolean mystery(int x,int y,int z){
  return x <= y && y <= z;
}
```

9. T/F These two functions always return the same value as each other given the same arguments.

```
int try1(int x,int y,int z){
  return min(x, min(y, z));
}
```

```
int try2(int x,int y, int z){
  if (x <= y && x <= z)
    return x;
  else if (y <= x && y <= z)
    return y;
  else return z;
}
```

10. What expression goes in the blank so this program draws a red ball when the mouse is to the right of the center and a black ball when the mouse is to the left of center?

- A. mouseY > 50
- B. mouseY < 50
- C. mouseX > 50
- D. mouseX < 50
- E. none of A to D

```
void draw() {
  background(255);
  drawBall(mouseX, mouseY, _____);
}
void drawBall(int x,int y,boolean red) {
  if (red) {
    fill(255,0,0);
  }
  else {
    fill(0);
  }
  ellipse(x, y, 40, 40);
}
```