

NAME: _____

CSC110/CIS163

Take Home QUIZ #4 on Objects and Classes (10 Points)

To Receive full credit must be handed in at the beginning of class

Evaluate the following code that defines the Balloon class

```
public class Balloon {  
  
    private int diameter;  
    private int xCoord;  
    private int yCoord;  
  
    private static int balloonCount = 0;  
  
    public Balloon(int initialDiameter, int initialX, int initialY)  
    {  
        diameter = initialDiameter;  
        xCoord = initialX;  
        yCoord = initialY;  
  
        balloonCount++;  
    }  
  
    public void changeSize(int size)  
    {  
        diameter = diameter + size;  
    }  
  
    public void display(Graphics g)  
    {  
        g.drawOval(xCoord, yCoord, diameter, diameter);  
    }  
}
```

1. What is the name of this class?
 - a. Balloon
 - b. myBalloon
2. What are the instance variables for this class?
 - a. initialDiameter, initialX, initialY
 - b. diameter, xCoord, yCoord
3. Which of the following method headers belongs to the constructor for this class?
 - a. public void changeSize(int size)
 - b. public void display(Graphics g)
 - c. public Balloon(int initialDiameter, int initialX, int initialY)

4. Which of the following statements would declare an object of type Balloon? This statement would be found in your BalloonController file.
 - a. Balloon myBalloon;
 - b. myBalloon Balloon;
5. Which of the following statements will create (instantiate) our new Balloon object? This statement would be found in your BalloonController file.
 - a. myBalloon = new Balloon(20, 50, 50);
 - b. myBalloon = new Balloon(20, 50);
6. Which statement would invoke the display method of the object myBalloon?
 - a. myBalloon.display(g);
 - b. myBalloon.display;
7. If you have issued the following lines of code in your BalloonController, then what is the value of balloonCount?

```
littleBalloon = new Balloon(20, 30, 10);  
bigBalloon = new Balloon(50, 60, 200);
```

 - a. 0
 - b. 2
8. Which of the following variables is called a **class** variable? In other words it belongs to a class and not to any individual objects that are created as instances of the class.
 - a. balloonCount
 - b. there is no such variable allowed

For questions 9 and 10 you will need to review the inheritance chapter:

9. Given the class Balloon , you create a derived class (also called subclass) called HeliumBalloon. Which of the following statements would you find in HeliumBalloon class definition.
 - a. public class HeliumBalloon extends Balloon {
 - b. public class HeliumBallon inherits Balloon {
10. Which of the following methods is a valid constructor for HeliumBalloon:
 - a.

```
public HeliumBalloon (int initialDiameter, int initialX)  
{  
    super(initialDiameter, initialX);  
}
```
 - b.

```
public HeliumBalloon (int initialDiameter, int initialX, int initialY)  
{  
    super(initialDiameter, initialX, initialY);  
}
```