CS 1316, Summer Quiz 1

   
   +1 pts for correct answer

2. Which of the following lines of Java code are POSSIBLY valid? Circle the correct choices. [5 pts]
   
   - (a) double x;
   - (b) real x = 0.0;
   - (c) double x = 9.0;
   - (d) x = 9.0;
   - (e) double real = new Color(255, 255, 255);

   +2 pts for each correct answer (a,c,d), (max +5)
   - 2 pts for each incorrect answer (b,e), (max -4)

3. The following function goes through all the numbers from 1 to 10, multiplying them together and
   returns the product (i.e. the factorial 10!). Complete the first line of the for loop so that the function
   works correctly. [6 pts]

   ```java
   int factorial10() {
       int product = 1;
       for (_____________; _______________; _______________) {
           product = product * i;
       }
       return product;
   }
   ```

   +2 pts for each part, (max +6)
   -1 pt per each type of syntax error
   -1 pt per logical error

   Acceptable answers for part 1:
   ```java
   int i = 1;
   ```
   Acceptable answers for part 2:
   ```java
   i <= 10;
i < 11;
   ```
   Acceptable answers for part 3:
   ```java
   i++
i=i+1
   ```

4. The following method in the class Picture decreases the blue in the picture (and therefore makes it
   look more yellow). However, there are several errors in the code. Mark the code below to correct the
   errors. [6 pts]

   ```java
   def void decreaseBlue():
       Pixel[] pixels = getPixels(this);
       width = this.getWidth();
       int area == width * this.getHeight();
       int pixNum = 0;
       while (pixNum <= area):
   ```
Pixel pix = pixels.pixNum;
blueValue = pix.getBlue();
pix.setBlue((int)(blueValue * 0.5));
pixNum++ = pixNum + 1

Answer:
public void decreaseBlue() { 
    Pixel[] pixels = this.getPixels();
    width = this.getWidth();
    int area = width * this.getHeight();
    int pixNum = 0;
    while (pixNum <= area) { 
        Pixel pix = pixels[pixNum];
        blueValue = pix.getBlue();
        pix.setBlue((int)(blueValue * 0.5));
        pixNum++ = pixNum + 1;
    }
}

Errors:
• def should be public or deleted
• : and indentation should be { and }
• getPixels() should be this.getPixels()
• == should be =
• area line should end in ;
• : and indentation should be { and }
• pixels.pixNum should be pixels[pixNum]
• should just be pixNum++; or pixNum = pixNum + 1;

+1 pt for each error that is corrected (max +6).
-1 pt for correcting something that did not need correcting (max -6).

(5) Write Java code that draws a rectangle that is twice as long as it is high, where height is given to be 100 pixels. [7 pts]
public class TurtleSquares {
    public static void main(String[] args) {
        // Write your code below

        1st case
        Students were allowed to hardcode in the height and width. The following solution reflects this:
        public class TurtleSquares {
            public static void main(String[] args) {
                // Write your code below
                World w = new World();
                Turtle t = new Turtle(w);
                t.forward(100);
                t.turn(90);
                t.forward(200);
                t.turn(90);
                t.forward(100);
                t.turn(90);
                t.forward(200);
            }
        }
2nd case
Student may have also tried to calculate the width from the given height though both were given during the quiz. The following solution reflects this case:

```java
public class TurtleSquares {
    public static void main(String[] args) {
        // Write your code below
        World w = new World();
        Turtle t = new Turtle(w);
        int height = 100;
        t.forward(height);
        t.turn(90);
        t.forward(2*height);
        t.turn(90);
        t.forward(height);
        t.turn(90);
        t.forward(2*height);
    }
}
```

- +1pt correct declaration of World or blank Picture
- +1pt correct declaration of Turtle
- +5pts correct Turtle movements to draw the rectangle desired
  - -2pts (regards 2nd case) a variable that represents either the height or width is not declared but used within calculations for Turtle movements
  - -2pts for inverting the height and the width
- -1pts for each type of minor syntax error
- No points off forgetting to close the `main` method and the class declaration, but be sure to mark it for the student on the paper.