Name:_____ Prism ID (gtx000x, jsmith0): _____

CS 1316, Summer Quiz 1

1. Who is your grading TA? [1 pt] Kristin or Rory.

+1pts 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);

+2pts for each correct answer (a,c,d), (max +5)
- 2pts 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]

```
int factorial10() {
    int product = 1;
    for (_____
;_____;_____)
        product = product * i;
    return product;
}
```

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

Acceptable answers for part 1:
        int i = 1;
Acceptable answers for part 2:
        i <= 10;
        i < 11;
Acceptable answers for part 3:
        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]

```
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(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;
    }
}
```

Errors:

- def should be public or deleted
- : and indentation should be { and }
- getPixels(this) 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;

+1pt for each error that is corrected (max +6).
-1pt 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:

```
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);
      }
}
```

- o +1pt   correct declaration of World or blank Picture
- o +1pt   correct declaration of Turtle
- o +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
- o -1pts   for each type of minor syntax error
- o 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.