Name _____ Period_____

1. Write a driver class called "Math". In the the driver class, (2 points)

   Indicate each part below in your code with appropriate comments. For example, for part a type "//Part a". (1 point)

   a) Declare and initialize a variable b1. Declare and initialize a second variable b2. Write code that will calculate b1 raised to the power of b2, that is $b1^{b2}$. Store the new value in b1. (2 points)
   b) Write code that will multiply the value of the integer (c1) times the absolute value of the integer c2 and then store the result in the integer c3. (2 points)
   c) Write code that will generate a random double from 100 up to 200, then store the value in a variable d1 (2 points)
   d) Write code that will take the square root of e1 and store the result in e2 (2 point)
   e) Write a line of code that multiplies double f1 times pi and stores the result in f2 (2 points)

```
//part a
double b1 = 2.0, b2 = 3.0;
b1 = Math.pow(b1, b2);

//part b
int c1 = 2, c2 = -3;
int c3 = c1 * Math.abs(c2);

//part c
double d1 = Math.random()*100+100;

//part d
double e1 = 3.0;
double e2 = Math.sqrt(e1);

 //part e
 double f1 = 2;
 double f2 = f2*Math.PI;
```

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_____/30

2. What do the following print to the console? (1 point each)

(a) System.out.println(Math.ceil(-157.2));

-157.0

(b) System.out.println(Math.floor(-157.2));

-158.0

(c) System.out.println(Math.round(-157.2));

-157

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3. Write a driver class called "MadLibs". In the the driver class, (2 points)

Indicate each part below in your code with appropriate comments. For example, for part a type "//Part a". (1 point)

a) Declare a new Scanner object called kbReader that can accept input from the user (2 points)
b) Write a line of code that prints "How old are you?" to the console." Write a second line of code that stores the user's input as an int called c1. (2 points)
c) Write a line of code that prints "What is your name?" to the console. Write a second line of code that stores the user's input (both first and last name) as a String called d1. (2 points)

```
//part a
Scanner kbreader = new Scanner(System.in);

//part b
System.out.println("How old are you?");
int age = kbreader.nextInt();

//part c
System.out.println("What is your name?");
kbreader.next();
String name = kbreader.nextLine();
```

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Score _____/30

4. Write a random number generator. Your generator will prompt the user for two numbers. The first number should be negative. The second number should be greater than the absolute value of the first number. The numbers will represent the range. Once the input is received your program should generate two random numbers (int type) within the range specified, where the lowest number is inclusive but the highest number is not. Consider the example below,

```
Type a negative number: −5

Type a postive number that is greater than 5: 50

You got a −4 and a 36
```

```
System.out.println("Type a negative number: ");
int negNum = kbreader.nextInt();
System.out.println("Type a positive number that is greater than " + Math.abs(negNum));
int posNum = kbreader.nextInt();

int range = posNum - negNum;
int shift = Math.abs(negNum);

int randNum1 = (int)(Math.random()*range-shift);
int randNum2 = (int)(Math.random()*range-shift);

System.out.println("You got a " + randNum1 + " and " + randNum2);
```

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Score _____/30