

1. What is the output of the following Java program?

```
public class Trick
{
    public static void main(String[] args)
    {
        int i = 10, n = 0;
        for (; n < 10; n++)
        {
            i = n / 2;
        }

        System.out.println(i + i + "" + n + n);
        System.out.println(i + "" + (n + n));
    }
}
```

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2. Convert the for-loop construct in the following snippet of Java code into an equivalent while loop construct.

```
int j = 0;
for (int i = 100; i > 0; i -= 5)
{
    j += 3 * i;
}
System.out.println(j);
```

```
int j = 0;
while (i > 0) {
    j += 3 * i;
    i -= 5;
}
System.out.println(j);
```

3. Write a **complete** Java program that displays the string “Hello World!” to the console. Assume that the file-name of this program is HelloWorld.java.

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello World!");  
    }  
}
```

4. List the order of the statements in the following Java program as they would be executed **and** show what the program would output.

```
abstract class Pet  
{  
    protected String name;  
    protected int age;  
  
    public Pet(String a, int b)  
    {  
1:        name = a;  
2:        age = b;  
    }  
  
    public void grow()  
    {  
3:        age++;  
    }  
  
    public String toString()  
    {  
4:        return name + ":" + age + " years old.";  
    }  
}  
  
class Cat extends Pet  
{  
    public Cat(String name, int age)  
    {  
5:        super(name, age);  
    }  
}  
class Dog extends Pet  
{  
    public Dog(String name, int age)
```

```

6:         {
            super(name, age);
        }

    public class Home
    {
        public static void main(String [] args)
        {
7:            Pet mydog = new Dog("Spike", 5);
8:            Pet mycat = new Cat("Tom", 3);
9:            System.out.println(mycat + "\t" + mydog);
10:           for (int i = 0; i < 2; i++)
            {
11:               mydog.grow();
12:               mycat.grow();
            }
13:           System.out.println(mycat + "\t" + mydog);
        }
    }

```

5. Given the following code below, write the output. There is a place to put your output at the end of the code. Write the output for each trick AND give a short explanation of the trick(s) used and why the answer is what it is. Do this for each of the 4 trick questions. Syntax highlighting has been purposefully omitted for this code.

```

class Trick2 {
    public Trick2() {
        int counter = 0;
        while (counter > 10);
        counter++;
        System.out.println(counter + counter + "");
    }
}

```

```

class Trick3 {
    public Trick3(boolean run) {
        if (run) {

```

```

        int counter = 1;
        while (counter > 10)
            counter++;
        float number = 10 / counter;
        System.out.println((int)number + "");
    }
}

public String toString() {
    return "0";
}
}

```

```

class Trick4 extends Trick3 {
    public Trick4() {
        super(false);
    }

    public String toString() {
        return "1";
    }

    public void toString(int x) {
        x = 2;
        System.out.println(x);
        return;
    }

    public String ToString() {
        return "3";
    }

    public void ToString() {
        System.out.println("4");
        return;
    }
}

```

```

class Trick5 {
    public Trick5() {
        // float value holding average grade per student
    }
}

```

```

int count = 5;

// adds a value of 1 to count
count += 2;

// calls the barr fuction
//count *= foo();
count++; //; /**= foo();*/
count /* *= ba/*r*/ *= baz(); //foo();

// this code doesn't work for some reason
float num = (float)(int)(float)(count + 0.5f);

// displays the first frame in Halo 5: Guardians
System.out.println("" + (int)count + (int)num);
}

private int bar() {
    return 3;
}

private int foo() {
    return 4;
}

private int baz() {
    return 5;
}
}

public class Tricky {
    public static void main(String[] args) {
        System.out.print("Trick1: ");
        Trick1 t1 = new Trick1();

        System.out.print("Trick2: ");
        Trick2 t2 = new Trick2();

        System.out.print("Trick3: ");
        Trick3 t3 = new Trick3(true);

        System.out.print("Trick4: ");
        Trick4 t4 = new Trick4();
        System.out.println(t4);

        System.out.print("Trick5: ");
        Trick5 t5 = new Trick5();
    }
}

```

Output and Explanations for tricks: