1. Write down the values that will be printed to the screen.

```
int j = 20;
int k = 21;
int m = 21;
int z = 0;

if (j >= k) {
  z = 1;
}
System.out.println(z);

z = 0;
if (j != k) {
  z = 2;
}
else {
  z = 3;
}
System.out.println(z);

z = 0;
if (k == m) {
  z = 4;
}
else if (k > j) {
  z = 5;
}
else {
  z = 6;
}
System.out.println(z);

z = 0;
if (j < k) {
  z = 7;
}
z = 8;
System.out.println(z);

z = 0;
if (j < k && k < m) {
  z = 9;
}
System.out.println(z);
```

2. Write down the values that will be printed to the screen.

```
int a = 49;
int b = 50;
int c = 49;
int d = 0;

if (a < 49) {
  if (b > 50) {
    d = 1;
  }
  else {
    d = 2;
  }
}
else {
  if (b > 50) {
    d = 3;
  }
  else {
    d = 4;
  }
}
System.out.println(d);

d = 0;
if (a < b || b < c) {
  if (a > c) {
    d = 5;
  }
  else if (c < a) {
    d = 6;
  }
}
else {
  d = 7;
}
System.out.println(d);

d = 0;
if (b > a && b > c) {
  d = 8;
}
else if (b > a || b > c) {
  d = 9;
}
System.out.println(d);
```

3. Write method headers and implement the following descriptions.

isPositive takes an integer parameter and returns whether it is positive

sameVal takes two booleans and returns whether they are the same or not

4. Call each of the methods in question 2. If a value is returned, store the result in an object or variable of the appropriate data type.

5. State the type of error. Assume *a*, *b*, and *x* are already defined integers.
   syntax: illegal Java code
   semantic: legal Java code, but an erroneous result
   none: the code is legal and produces a correct result

```
// determine if a is bigger than b
boolean bigger = false;
if (a >= b) {
  bigger = true;
}

// determine if a is less than or equal to b
boolean bigger = false;
if (a =< b) {
  bigger = true;
}

// determine if a and b are equal
boolean same = false;
if (a = b) {
  bigger = true;
}

// if a is 0 set x equal to 1
// otherwise, set x equal to b divided by a
int x = 1;
if (a > 0 || < 0) {
  x = b / a;
}

// if a and b are positive, set x equal to 1
// if a and b are negative, set x equal to -1
// otherwise set x equal to 0
int x = 0;
if (a > 0) {
  if (b > 0) {
    x = 1;
  }
}
else if (a < 0) {
  else if (b < 0) {
    x = -1;
  }
}
```