Java Programming
Semester 1 Review Problems

Name _____
Date _____ Period _____

1) Fill in the table with the appropriate values.

Expression	Binary	Hexadecimal	Decimal
a. 101010111_2			
b. 1110101100_2			
c. 321_{10}			
d. 1012_{10}			
e. $F3_{16}$			
f. $BB4_{16}$			
g. $A6_{16}+120_{10}$			
h. 1110111_2+73_{10}			

2) Evaluate the following expressions. If it produces an error, list what type of error.

	Value	Data Type
a. 31 * 2 % 7 + 43	_____	_____
b. (int) 5.6 % 14 + (double) 3 / 2	_____	_____
c. 42 + (int) (5.6 / 3 - 0.222 * 102 + 5.143)	_____	_____
d. (char)('T' + 342.1 / 55)	_____	_____
e. (double)(int)(6.3 / 3.1 + 8 % 256)	_____	_____
f. -5.3 + -2.1 - -66.7	_____	_____
g. (2 + 5 * 22 % 7) < (108 % 9 + (int) 'h')	_____	_____
h. ((int)(15 / 16) + 9 * 8 == 75) ll ((int) 'Q' / 9 == 3 * 3 / 2)	_____	_____
i. 8.9 * 8.2 - 34 * (double)(1 / 3) >= 75.0	_____	_____

3) What does the following code output?

```
int fall = -3, leaves = 2, cooler = 8, autumn = -4;
if ( autumn * leaves > fall * cooler )
{
     leaves = 10;
     System.out.print ( leaves + " " );
     System.out.println ( leaves + 10 );
     leaves += 10;
}
if ( autumn * leaves < fall * cooler )
     System.out.println ( "This is the wrong answer." );
else
     System.out.println ( "California is best in the fall." );
     System.out.println ( "You can dance, you can sing, or just head to the mall!" );
```

Output

4) Rewrite this for loop as a while loop.

```
for (int i = 20; i > 3; i -= 2)
     System.out.print(i + " ");
```

5) Circle the eight errors in the following code fragment.

```
     int first = 3; second;

     Scanner kb = new Scanner();

     char case = kb.nextChar();

     boolean 3rd = (first > 1) >= (second < 0);

     for (int i = 0; i < 10; i++)

          System.out.printf("%f", i);
     }
```

6) Use the following code to answer the questions below.

```
/*  1 */ class Building
/*  2 */ {
/*  3 */     private int numFloors; // number of floors in building
/*  4 */ }
/*  5 */ class Residential extends Building
/*  6 */ {
/*  7 */     private int numBedrooms, numBathrooms;
/*  8 */ }
/*  9 */
/* 10 */ class OfficeBlg extends Building
/* 11 */ {
/* 12 */     private int numOffices;   // number of offices
/* 13 */ }
/* 14 */
/* 15 */ class House extends Residential
/* 16 */ {
/* 17 */     private int numGarages;   // number of car garages
/* 18 */     public House()
/* 19 */     {
/* 20 */             numBedrooms = 4;  // default number of bedrooms
/* 21 */             numBathrooms = 2;  // default number of bathrooms
/* 22 */     }
/* 23 */ }
/* 24 */
/* 25 */ class Apartment extends Residential
/* 26 */ {
/* 27 */     private int floor;    // floor of the apartment in high-rise
/* 28 */     private boolean endUnit;  // Is apartment an end unit?
/* 29 */     public Apartment()
/* 30 */     {
/* 31 */             numBedrooms = 2;  // default number of bedrooms
/* 32 */             numBathrooms = 1;  // default number of bathrooms
/* 33 */     }
/* 34 */ }
```

a. What does the inheritance tree look like?

b. Lines 20, 21, 31, and 32 will cause a compiler “private access” error. Write code that would fix all these errors.

7) Using the method below, draw a recursive tree for the call TwoWay(5, 7) and give the result returned.

```
public int TwoWay(int first, int second)
{
     if (first < 1) return 1;
     if (second > 10) return 10;
     return TwoWay(first - 2, second + 1) + TwoWay(first - 1, second + 2);
}
```