

1) Fill in the table with the appropriate values.

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

	<u>Value</u>	<u>Data Type</u>
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. $((int)(15 / 16) + 9 * 8 == 75) \parallel ((int) 'Q' / 9 == 3 * 3 / 2)$	_____	_____
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 (nine really) 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);
}
```