

CIT- 225 | Introduction to Programming

Activity 2.7

Write each of the following as a Java expression.

a. 32 times a plus b $32 * a + b$

The character that represents 8 `'8'`

The string that represents the name Julie Nelson. `"Julie Nelson"`

$(b^2 - 4ac) / 2a$ $(b * b - 4 * a * c) / (2 * a)$

$(a + b) / c(ef) - gh$ $(a + b) / c * (e * f) - g * h$

$(-b + (b^2 - 4ac)) / 2a$ $(-b + (b * b - 4 * a * c)) / (2 * a)$

Suppose x, y, and z are `int` variables and w and t are `double` variables. What is the value of each variable after the last statement executes?

```
x = 17;
```

```
y = 15;
```

```
x = x + y / 4;
```

```
z = x % 3 + 4;
```

```
w = 17 / 3 + 6.5;
```

```
t = x / 4.0 + 15 % 4 - 3.5;
```

$x = 20, y = 15, z = 6, w = 11.5, t = 4.5$

Suppose x, y, and z are `int` variables and x=2, y=5, and z=6. What is the output of each of the following statements?

```
System.out.println("x = " + x + ", y = " + y + ", z = " + z); = x = 2, y = 5, z = 6
```

```
System.out.println("x + y = " + (x + y)); = x + y = 7
```

```
System.out.println("Sum of "+x+"and"+z+"is"+(x+z)); = Sum of 2 and 6 is 8
```

```
System.out.println("z / x = " + (z / x)); = z / x = 3
```

```
System.out.println(" 2 times " + x + " = " + (2 * x)); = 2 times 2 = 4
```

Suppose a, b, and sum are `int` variables and c is a `double` variable. What value is assigned to each variable after each statement executes? Suppose a = 3, b = 5, and c = 14.1.

| | a | b | c | sum |
|------------------------------------|----|---|------|-----|
| <code>sum = a + b +(int) c;</code> | 3 | 5 | 14.1 | 22 |
| <code>c /= a;</code> | 3 | 5 | 4.7 | 22 |
| <code>b +=(int) c - a;</code> | 3 | 6 | 4.7 | 22 |
| <code>a *= 2 * b +(int) c;</code> | 48 | 6 | 4.7 | 22 |

Write a program that prompts the user to enter the capacity, in gallons, of an automobile fuel tank and the miles per gallons the automobile can be driven. The program outputs the number of miles the automobile can be driven without refueling.

```
* @author 201433574
*/
public class JavaApplication9 {
    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // This is the class demo to help with homework
        //for writing programs

        double capacity = 0; // this is the capacity if the fuel tank
        double distance = 0; // this is the disteance the plane can fly
        double mile_per_ltr = 0; //the distance it should be able to fly

        System.out.println("What is the capacity of your tank");

        Scanner console = new Scanner(System.in);

        capacity = console.nextDouble();

        System.out.println("how far can your automobile drive per litre of fule?");

        mile_per_ltr = console.nextDouble();
        System.out.println("the automobile can drive " + capacity * mile_per_ltr + ".");
    }
}
```

javaapplication9.JavaApplication9

Output - JavaApplication9 (run)

```
run:
What is the capacity of your tank
2255
how far can your automobile drive per litre of fule?
100
the automobile can drive 225500.0.
BUILD SUCCESSFUL (total time: 27 seconds)
```

Write a Java program that prompts the user to input the elapsed time for an event in seconds. The program then outputs the elapsed time in hours, minutes, and seconds. (For example, if the elapsed time is 9630 seconds, then the output is 2:40:30.)

```
package javaapplication8;
import java.util.*;
/**
 *
 * @author 201433574
 */
public class JavaApplication8 {
    static Scanner scan= new Scanner(System.in);
    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // TODO code application logic here

        System.out.println("Enter the elapsed time in seconds:");
        int totalseconds = scan.nextInt();

        System.out.println(totalseconds);

        int hours = totalseconds / 3600 % 24;
        int minutes = totalseconds / 60 % 60;
        int seconds = totalseconds % 60;
        ;

        System.out.println("The elapsed time is:" + hours + ":" + minutes + ":" + seconds);
    }
}
```

javaapplication8.JavaApplication8 > main >

Output - JavaApplication8 (run) x

```
run:
Enter the elapsed time in seconds:
9630
9630
The elapsed time is:2:40:30
BUILD SUCCESSFUL (total time: 20 seconds)
|
```

A milk carton can hold 3.78 liters of milk. Each morning, a dairy farm ships cartons of milk to a local grocery store. The cost of producing one liter of milk is \$0.38, and the profit of each carton of milk is \$0.27. Write a program that does the following:

- Prompts the user to enter the total amount of milk produced in the morning
- Outputs the number of milk cartons needed to hold milk (Round your answer to the nearest integer.)
- Outputs the cost of producing milk
- Outputs the profit for producing milk

```
*
 * @author 201433574
 */
public class JavaApplication8 {
    private static String cout;
    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        // TODO code application logic here
        Scanner scanner = new Scanner(System.in);
        double carton_capacity = 3.78;
        double price_per_liter = 0.38;
        double profit_per_carton = 0.27;

        System.out.print("Enter amount of milk to buy: ");

        double milk_amount = scanner.nextDouble();
        double cartonsNeeded = milk_amount / carton_capacity ;
        double totalcost ;
            totalcost = milk_amount * price_per_liter;

        System.out.println("the number of milk cartons needed to hold milk :"+ (int)(milk_amount / carton_capacity)
        System.out.println( "profit_per_cartons needed: " + cartonsNeeded * profit_per_carton);
        System.out.println( "cost of produsing milk: " + milk_amount * price_per_liter);
        System.out.println("Total profit:" + profit_per_carton * cartonsNeeded);
    }
}

javaapplication8.JavaApplication8 >
Output - JavaApplication8 (run)
run:
Enter amount of milk to buy:
22
the number of milk cartons needed to hold milk :5
profit_per_cartons needed: 1.5714285714285716
cost of produsing milk: 8.36
Total profit:1.5714285714285716
BUILD SUCCESSFUL (total time: 4 seconds)
```