

Task 2.2

1. A computer manufacturing company has the following monthly compensation policy to their sales- persons:

Minimum Base Salary: 1500.00

Bonus for every computer sold: 200.00

Commission on the total monthly sales: 2 % (Percent) on total sale price of computers.

Since the prices of computers are changing, sales price of each computer is fixed at the beginning of every month. Write a Program to compute a sales-person's gross salary by accepting the below information:

A. **No of computers sold.**

B. **Price of computers sold.**

After accepting above details, calculate and display the below things:

A. **Bonus** (which is product of fixed bonus and total computers sold).

B. **Commission.** (Which is product of fixed commission and total cost of all computers).

C. **Gross Salary** (Total of Base Salary, Bonus and Commission).

2. Consider the quadratic equation below:

$$ax^2 + bx + c = 0;$$

The values of x that satisfy the equation are known as the roots of the equation. A quadratic equation has two roots which are given by the following two formulae:

$$\text{Root 1 : } x = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

$$\text{Root 2 : } x = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$$

Write a program to evaluate these roots by accepting the value of a, b, and c from user and display the values for both roots.

3. Consider the below statements :

Int a = 10, b = 20, c;

Determine whether each of the following statements are true or false with explanation.

- A. The statement `a =+ 10` is valid.
- B. The expression `a + 4/6 * 6/2` evaluates to 11.
- C. The expression `b + 3/2 * 2/3` evaluates to 20.
- D. The statement `a += b`; gives the value 30 to a and 20 to b.
- E. The statement `++a++`; gives the value 12 to a.
- F. The statement `a=1/b`; assigns the value 0.5 to a.

4. Declared a as int and b as float, state whether the following statements are true or false:

- A. The statement `a=1/3 +1/3 + 1/3`; assigns the value 1 to a.
- B. The statement `b= 1.0/3.0 + 1.0/3.0 + 1.0/3.0`; assigns a value 1.0 to b.
- C. The statement `b= 1.0/3.0 * 3.0` gives a value 1.0 to b.
- D. The statement `b = 1.0/3.0 + 2.0/3.0` assigns a value 1.0 to b.
- E. The statement `a=15/10.0 + 3/2`; assigns a value 3 to a.

5. Which of the following expressions are true?

- A. `!(5 + 5 >= 10)`
- B. `5 + 5 == 10 || 1 + 3 == 5`
- C. `5 > 10 || 10 < 20 && 3 < 5`
- D. `10 != 15 && !(10 < 20) || 15 > 30`

6. Which of the following arithmetic expressions are valid? If valid, give the value of the expression; otherwise give reason.

- A. `25/3 % 2`
- B. `+9/4 +5`

- C. $7.5 \% 3$
- D. $14 \% 3 + 7 \% 2$
- E. $-14 \% 3$
- F. $15.25 + - 5.0$
- G. $(5/3) * 3 + 5 \% 3$
- H. $21 \% (\text{int})4.5$

7. Write an program to evaluate the following equations :

- A. $Area = \pi r^2 + 2\pi rh$, Accept values of radius and height from user and calculate the Area by above formula.
- B. Torque = $\frac{2ab}{a+b} * c$, Accept the values of a, b, and c from user and calculate Torque.
- C. Side = $\sqrt{a^2 + b^2 - 2ab \cos(x)}$, Accept the values of a, b and x to calculate the side.
- D. Energy = $mass [acceleration \times height + \frac{velocity^2}{2}]$, Accept mass, acceleration, height and velocity from user and calculate the energy.

8. Find errors, if any, in the following assignment statements and rectify them.

- a. $x = y = z = 0.5, 2.0, -5.75;$
- b. $m = ++a * 5;$
- c. $y = \text{Math.Sqrt}(100);$
- d. $p *= x/y;$
- e. $s = / 5;$
- f. $a = b++ - c*2$

9. Predict the output for the below code:

```
public static void Main()
{
    char c = (char)100;
    int y = Convert.ToInt32(c == 100);
    Console.WriteLine(y);}

```

