**Operator Related Problems**

**(Total 15 questions)**

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| **SL** | **Problem statement** | **Difficulty levels** |
|  | Program that will take two numbers **X** and **Y** as inputs, then calculate and print the values of their addition, subtraction, multiplication, division (quotient and reminder).   |  |  | | --- | --- | | **Sample input (X,Y)** | **Sample output** | | 5 10 | Addition: 15  Subtraction: -5  Multiplication: 50  -14 % 3 = -2  -14 % -3 = -2  14 % -3 = 2  Quotient : 0  Reminder: 5 | | -5 10.5 | Addition: 5.5  Subtraction: -15.5  Multiplication: -52.5  Quotient: 0  Reminder: -5 | | \* |
|  | Program that will calculate the circumference of a circle having radius **r.**  Area, A = 2 \* Pi \* r   |  |  | | --- | --- | | **Sample input (r)** | **Sample output** | | 5 | Area: 31.4 | | 10.5 | Area: 65.94 | | \* |
|  | Program that will take two numbers **(a, b)** as inputs and compute the value of the equation – (Without using math.h)  X = (3.31 \* a**2** + 2.01 \* b**3**) / (7.16 \* b**2** + 2.01 \* a**3**)   |  |  | | --- | --- | | **Sample input (a, b)** | **Sample output** | | 5 10.5 | X = 2.315475 | | 100 -250 | X = -12.766287 | | \* |
|  | Program that will increment and decrement a number **X** by 1 inside the *printf* function. (Use ++ and - - operators)   |  |  | | --- | --- | | **Sample input(X)** | **Sample output** | | 5 | X++ : 5  ++X : 6  X- - : 5  --X : 4 | | -5 | X++ : -5  ++X : -4  X- - : -5  --X : -6 | | \*\* |
|  | Program that will increment and decrement a number **X** by **Y**. (Use += and -= operators)   |  |  | | --- | --- | | **Sample input(X,Y)** | **Sample output** | | 5 10 | Incremented Value: 15  Decremented Value: -5 | | -5 5 | Incremented Value: 0  Decremented Value: -10 | | \* |
|  | Program that will multiply and divide a number **X** by **Y**. (Use \*= and /= operators)   |  |  | | --- | --- | | **Sample input(X,Y)** | **Sample output** | | 56 10 | Multiplication: 560  Division: 5 | | -56 -10 | Multiplication: 560  Division: 5 | | \* |
|  | Program that will declare and initialize an integer and a floating point number. Then it will perform floating to integer and integer to floating conversions using   1. Assignment operation 2. Type casting  |  |  | | --- | --- | | **Sample input** | **Sample output** | | -150 123.125 | Assignment: 123.125000 assigned to an int produces 123  Assignment: -150 assigned to a float produces -150.000000  Type Casting: (float) -150 produces -150.000000  Type Casting: (int) 123.125 produces -123 | | \*\* |
|  | Program that will take two numbers as inputs and print the maximum value. (Using conditional operator - ?)   |  |  | | --- | --- | | **Sample input (x, y)** | **Sample output** | | 20 100 | Max: 100 | | 50 -20 | Max: 50 | | \*\* |
|  | Program that will evaluate the following equations -  X = a – b / 3 + c \* 2 – 1  Y = a – ( b / ( 3 + c ) \* 2) - 1  Z = a – ( ( b / 3) + c \* 2) - 1   |  |  | | --- | --- | | **Sample input (a, b, c)** | **Sample output** | | 9 12 3 | X = 10  Y = 4  Z = -2 | | \* |
|  | Program that will take **a**, **b** & **c** as inputs and decide if the statements are True (1) of False (0)   |  |  | | --- | --- | | **Sample input (a, b, c)** | **Sample output** | | 10 -10 0 | 1. 1 2. 0 3. 1 | | \*\* |
|  | Program that will take **a**, **b** & **c** as inputs and decide if the statements are True (1) of False (0)   |  |  | | --- | --- | | **Sample input (a, b, c)** | **Sample output** | | 10 -10 0 | 1. 0 2. 1 3. 1 | | \*\*\* |
|  | Program that will take calculate the roots of a quadratic equation (a.x**2** + b.x + c = 0) from the formula, (here, dot (.) stands for multiplication) -   |  |  | | --- | --- | | **Sample input (a, b, c)** | **Sample output** | | 2 4 -16 | 2.00 -4.00 | | 1 2 3 | Imaginary | | \*\*\* |
|  | Program that will evaluate the equation  ; where 1<= x <=180 [No checking needed]   |  |  | | --- | --- | | **Sample input (x)** | **Sample output** | | 30 | 0.8927936413 | | 120 | -0.1339745962 | | 180 | 3.000013 | | \*\*\* |
|  | Program that will take a floating point number **X** as input and evaluate **A,B,C** where-  **A** = Value when **X** is rounded up to the nearest integer  **B** = Value when **X** is rounded down to the nearest integer  **C** = Absolute value of **X**   |  |  | | --- | --- | | **Sample input(X)** | **Sample output** | | 10.6 | A = 11, B = 10, C = 10.6 | | -77.9 | A = 78, B = 77, C = 77.9 | | \*\* |
|  | Program to find size of int, float, double and char of the system.   |  |  | | --- | --- | | **Sample input** | **Sample output** | |  | Size of int in byte(s) = 4  Size of float in byte(s) = 4  Size of double in byte(s) = 8  Size of char in byte(s) = 1 | | \*\* |