Operator Related Problems

(Total 15 questions)

<table>
<tr><th>SL</th><th>Problem statement</th><th>Difficulty levels</th></tr>
<tr><td>1.</td><td>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).

<table>
<tr><th>Sample input (X,Y)</th><th>Sample output</th></tr>
<tr><td>5 10</td><td>Addition: 15
Subtraction: -5
Multiplication: 50
Quotient : 0
Reminder: 5</td></tr>
<tr><td>-5 10.5</td><td>Addition: 5.5
Subtraction: -15.5
Multiplication: -52.5
Quotient: 0
Reminder: -48</td></tr>
</table>
-14 % 3 = -2

-14 % -3 = -2</td><td>*</td></tr>
<tr><td>2.</td><td>Program that will calculate the circumference of a circle having radius r.
Area, A = 2 * Pi * r

<table>
<tr><th>Sample input (r)</th><th>Sample output</th></tr>
<tr><td>5</td><td>Area: 31.4</td></tr>
<tr><td>10.5</td><td>Area: 65.94</td></tr>
</table></td><td>*</td></tr>
<tr><td>3.</td><td>Program that will take two numbers (a, b) as inputs and compute the value of the equation – (Without using math.h)

$X = (3.31 * a^2 + 2.01 * b^3) / (7.16 * b^2 + 2.01 * a^3)$

<table>
<tr><th>Sample input (a, b)</th><th>Sample output</th></tr>
<tr><td>5 10.5</td><td>X = 2.315475</td></tr>
<tr><td>100 -250</td><td>X = -12.766287</td></tr>
</table></td><td>*</td></tr>
</table>

	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	**
5.	Program that will increment and decrement a number **X** by **Y**. (Use += and -= operators) **Sample input(X,Y)** — **Sample output** 5 10 Incremented Value: 10 Decremented Value: -5 -5 5 Incremented Value: 0 Decremented Value: -10	*
6.	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	*
7.	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 (a) Assignment operation (b) 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	**
9.	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 = -1	*
10.	Program that will take **a**, **b** & **c** as inputs and decide if the statements are True (1) of False (0) a) b) c) **Sample input (a, b, c)** — **Sample output** 10 -10 0 — a) 1 b) 0 c) 1	**
11.	Program that will take **a**, **b** & **c** as inputs and decide if the statements are True (1) of False (0) 1) 2) 3) **Sample input (a, b, c)** — **Sample output** 10 -10 0 — 1) 0 2) 1 3) 1	***

12. 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

13. Program that will evaluate the equation ***

; where 1<= x <=180 [No checking needed]

Sample input (x)	Sample output
30	1.810066
120	0.778151
180	3.954243

14. 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

15. 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