**Operator Related Problems**

**(Total 15 questions)**

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| **SL** | **Problem statement** | **Difficulty levels** |
| -14 % 3 = -2  -14 % -3 = -2  14 % -3 = 2 | 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  Quotient : 0  Reminder: 5 | | -5 10.5 | Addition: 5.5  Subtraction: -15.5  Multiplication: -52.5  Quotient: 0  Reminder: -48 |   int main(){  int x,y;  printf("Enterv two number ");  scanf("%d %d",&x,&y);  float Addition=x+y;  float Sub=x-y;  float Multi=x\*y;  float Quoa=x/y;  float Rem=x%y;    printf("Addition: %.2f \n", Addition);  printf("Substraction: %.2f \n", Sub);  printf("Multi: %.2f \n",Multi);  printf("Quoation: %.2f \n",Quoa);  printf("Reminder: %.2f \n", Rem);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  #define pi 3.1416  int main(){  float r,Area;  printf("Enter radious ");  scanf("%f",&r);  Area=2\*pi\*r;  printf("Area: %.2f",Area);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  #include <math.h>  int main(){  float a,b,X;  printf("Enter two number: ");  scanf("%f %f",&a,&b);  X=(3.31\*a\*a+2.01\*pow(b,3))/(7.16\*b\*b+2.01\*pow(a,3));  printf("X: %.6f",X);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  int main()  {  int x,a;  printf("Enter the value: ");  scanf("%d",&x);  a=x;  printf("X++: %d\n",x++);  x=a;  printf("++X: %d\n",++x);  x=a;  printf("X--: %d\n",x--);  x=a;  printf("-X: %d\n",--x);  return 0;  } | \*\* |
|  | 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 |   #include <stdio.h>  int main(){  int X,Y,a,b;  printf("Enter two number: ");  scanf("%d %d",&X,&Y);  a=X;  b=Y;  printf("Increment Value: %d \n",X+=X );  X=a;  Y=b;  printf("Decrement Value: %d \n",X-Y);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  int main(){  int x,y;  printf("Enterv two number ");  scanf("%d %d",&x,&y);  int Multi=x\*y;  int Divition=x/y;  printf("Divition: %d \n", Divition);  printf("Multiplication: %d\n",Multi);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  int main(){  int a;  float b;  printf("Enter two number: ");  scanf("%d %f",&a,&b);  b=a;  printf("Assignment: %f\n",(float)b);  printf("Assignment: %f",(float)a);  return 0;  } | \*\* |
|  | 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 |   #include <stdio.h>  int main(){  int x,y;  printf("Enterv two number ");  scanf("%d %d",&x,&y);  if (x>y ){  printf("Max: %d",x);  }  else {  printf("Max : %d",y);  }  return 0;  } | \*\* |
|  | 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 |   #include <stdio.h>  int main(){  int a,b,c;  int X,Y,Z;  printf("Enterv three number ");  scanf("%d %d %d",&a,&b,&c);  X=a-b/3+c\*2-1;  Y=a-(b/(3+c)\*2)-1;  Z=a-((b/3)+c\*2)-1;  printf("X= %d\nY=%d\nZ=%d",X,Y,Z);  return 0;  } | \* |
|  | 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 |   #include <stdio.h>  int main(){  int a,b,c;  printf("Enterv three number ");  scanf("%d %d %d",&a,&b,&c);  if ((a+b)<=80){  printf("1\n");  }  else {  printf("0\n");  }  if (!a+c){  printf("1\n");}  else {  printf("0\n");  }  if (a!=0){  printf("1\n");}  else {  printf("0\n");  }  return 0;  } | \*\* |
|  | 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 |   #include <stdio.h>  int main(){  int a,b,c;  printf("Enterv three number ");  scanf("%d %d %d",&a,&b,&c);  if ((a+b)<=80 && b>=0){  printf("1\n");  }  else {  printf("0\n");  }  if ((a-b)==0||c!=0){  printf("0\n");}  else {  printf("1\n");  }  if (a!=b || (b<a)&& c>0){  printf("1\n");}  else {  printf("0\n");  }  return 0;  } | \*\*\* |
|  | 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 |   #include <stdio.h>  #include <math.h>  int main()  {  int a,b,c;  float root1,root2;  printf ("Enter three numbers: ");  scanf("%d %d %d",&a,&b,&c);  if((b\*b-4\*a\*c)>0){  root1=(-b+sqrt(b\*b-4\*a\*c))/(2\*a);  root2=(-b-sqrt(b\*b-4\*a\*c))/(2\*a);  printf("root= %.2f %.2f",root1,root2);  }  else {  printf ("imaginary");  }  return 0;  } | \*\*\* |
|  | Program that will evaluate the equation  ; where 1<= x <=180 [No checking needed]  [Hint: Beware of angle in degree and radian]   |  |  | | --- | --- | | **Sample input (x)** | **Sample output** | | 30 | 1.810066 | | 120 | 0.778151 | | 180 | 3.954243 |   #include <stdio.h>  #include <math.h>  #define pi 3.141592653589793238  int main()  {  float a,x;  float res;  printf ("Enter the angle (1<=x<=180): ");  scanf("%f",&a);  x=a\*(pi/180.0);  res=2\*cos(x)\*cos(x)-sqrt(3)\*sin(x)+sin(x/2);  printf("res= %.6f",res);  return 0;  } | \*\*\* |
|  | 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 |   #include <stdio.h>  #include <math.h>  int main()  {  int A,B;  float x,C;  printf ("Enter the number ");  scanf("%d",&x);  A=fabs(x)+1;  B=(int)fabs(x);  C=fabs(x);  printf("A=%d\nB=%d\nC=%f",A,B,C);  return 0;  } | \*\* |
|  | 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 |   #include <stdio.h>  int main()  {  int intType;  float floatType;  double doubleType;  char charType;  printf("Size of int in byte: %d \n",sizeof(intType));  printf("Size of float in byte: %lf \n",sizeof(floatType));  printf("Size of double in byte: %lf \n",sizeof(doubleType));  printf("Size of char in byte: %d \n",sizeof(charType));  return 0;  } | \*\* |