# Question No. 1

#include <iostream>

using namespace std;

float add(float num1, float num2, float num3 = 0, float num4 = 0, float num5 = 0)

{

float add = num1 + num2 + num3 + num4 + num5;

return add;

}

float subtract(float num1, float num2, float num3 = 0, float num4 = 0, float num5 = 0)

{

float subtract = num1 - num2 - num3 - num4 - num5;

return subtract;

}

float multiply(float num1, float num2, float num3 = 1, float num4 = 1, float num5 = 1)

{

float multiply = num1 \* num2 \* num3 \* num4 \* num5;

return multiply;

}

int main()

{

cout << "Add:\t" << add(10, 20) << endl;

cout << "Subtract:\t" << subtract(50, 30) << endl;

cout << "Multiply:\t" << multiply(10, 20) << endl;

}

# Output:

# Question No. 2

#include <iostream>

using namespace std;

float average(float num1, float num2, float num3, float num4, float num5 = 0)

{

float average = (num1 + num2 + num3 + num4 + num5) / 5;

return average;

}

int main()

{

float n1, n2, n3 , n4, n5;

cout << "Enter 5 Numbers: ";

cin >> n1 >> n2 >> n3 >> n4 >> n5;

cout << "The average of given numbers is: " << average(n1, n2, n3, n4, n5) << endl;

}

# Output:

# Question No. 3

#include <iostream>

using namespace std;

int add(int num1, int num2)

{

return num1 + num2;

}

float add(float num1, float num2)

{

return num1 + num2;

}

int add(int num1, int num2, int num3)

{

return num1 + num2 + num3;

}

float add(float num1, float num2, float num3)

{

return num1 + num2 + num3;

}

int main()

{

// Two Integers Values

int n1, n2;

cout << "Enter two integer value: ";

cin >> n1 >> n2;

cout << "The sum of two integer values is: " << add(n1, n2) << endl;

//Two Float Values

float nu1, nu2;

cout << "\nEnter two float value: ";

cin >> nu1 >> nu2;

cout << "The sum of two float values is: " << add(nu1, nu2) << endl;

//Three Integers Values

int num1, num2, num3;

cout << "\nEnter three integer value: ";

cin >> num1 >> num2 >> num3;

cout << "The sum of three integer values is: " << add(num1, num2, num3) << endl;

//Three Float Values

float numb1, numb2, numb3;

cout << "\nEnter three float value: ";

cin >> numb1 >> numb2 >> numb3;

cout << "The sum of three float values is: " << add(numb1, numb2, numb3) << endl;

}

# Output:

# Question No. 4

#include <iostream>

using namespace std;

int largest(int num1, int num2, int num3)

{

int max = 0;

if(num1>max)

max = num1;

if(num2>max)

max = num2;

if(num3>max)

max = num3;

}

float largest(float num1, float num2, float num3)

{

float max = 0;

if(num1>max)

max = num1;

if(num2>max)

max = num2;

if(num3>max)

max = num3;

}

int main()

{

int n1, n2, n3;

cout << "Enter three integers values: ";

cin >> n1 >> n2 >> n3;

cout << "The largest integer number is: " << largest(n1, n2, n3) << endl;

float nu1, nu2, nu3;

cout << "\nEnter three float values: ";

cin >> nu1 >> nu2 >> nu3;

cout << "The largest float number is: " << largest(nu1, nu2, nu3) << endl;

}

# Output:

# Question No. 5

#include <iostream>

using namespace std;

int input(int &num, int &num1, int &num2)

{

cout << "Input three int values: ";

cin >> num >> num1 >> num2;

}

char input(char &num, char &num1, char &num2)

{

cout << "Input three char values: ";

cin >> num >> num1 >> num2;

}

float input(float &num, float &num1, float &num2)

{

cout << "Input three float values: ";

cin >> num >> num1 >> num2;

}

int output(int &num, int &num1, int &num2)

{

cout << "Three int values are: " << num << " " << num1 << " "<< num2 << endl;

}

char output(char &num, char &num1, char &num2)

{

cout << "Three char values are: " << num << " " << num1 << " "<< num2 << endl;

}

float output(float &num, float &num1, float &num2)

{

cout << "Three float values are: " << num << " " << num1 << " "<< num2 << endl;

}

int main()

{

int x, y, z;

char a, b, c;

float j, k , l;

input(x, y, z);

output(x, y, z);

input(a, b, c);

output(a, b, c);

input(j, k, l);

output(j, k, l);

}

# Output:

# Question No. 6

#include<iostream>

using namespace std;

void swap(int &a, int &b)

{

cout << "Values Before Swaping : " << a << endl;

cout << "Values Before Swaping : " << b << endl;

int temp;

temp = a;

a = b;

b = temp;

cout << "Values After Swaping : " << a << endl;

cout << "Values After Swaping : " << b << endl;

}

void swap(char &a, char &b)

{

cout << "Values Before Swaping : " << a << endl;

cout << "Values Before Swaping : " << b << endl;

char temp;

temp = a;

a = b;

b = temp;

cout << "Values After Swaping : " << a << endl;

cout << "Values After Swaping : " << b << endl;

}

int main ()

{

int x, y;

cout << "Enter two integers values: ";

cin >> x >> y;

swap(x, y);

char fir, sec;

cout << "\nEnter two char values: ";

cin >> fir >> sec;

swap(fir, sec);

return 0;

}

# Output:

# Question No. 7

#include <iostream>

using namespace std;

template<class T>

T average(T num1, T num2, T num3, T num4, T num5)

{

cout << "The average is: " << (num1 + num2 + num3 + num4 + num5) / 5 << endl;

}

int main()

{

int n1, n2, n3, n4, n5;

cout << "Enter first number: ";

cin >> n1;

cout << "Enter second number: ";

cin >> n2;

cout << "Enter third number: ";

cin >> n3;

cout << "Enter fourth number: ";

cin >> n4;

cout << "Enter fifith number: ";

cin >> n5;

average(n1, n2, n3, n4, n5);

return 0;

}

# Output:

# Question No. 8

#include <iostream>

using namespace std;

template <class T>

T addition(T num1, T num2, T num3, T num4, T num5)

{

return num1 + num2 + num3 + num4 + num5;

}

int main()

{

int n1, n2, n3, n4, n5;

cout << "Enter first number: ";

cin >> n1;

cout << "Enter second number: ";

cin >> n2;

cout << "Enter third number: ";

cin >> n3;

cout << "Enter fourth number: ";

cin >> n4;

cout << "Enter fifith number: ";

cin >> n5;

cout << "\nThe addition of given numbers is: " << addition(n1, n2, n3, n4, n5);

return 0;

}

# Output:

# Question No. 9

#include <iostream>

using namespace std;

template <class T>

T small(T num1, T num2, T num3)

{

T min;

if((num1<num2)&&(num1<num3))

min = num1;

else if(num2<num3)

min = num2;

else

min = num3;

cout << "\nThe smallest value is: " << min << endl;

}

int main()

{

int n1, n2, n3;

cout << "Enter first number: ";

cin >> n1;

cout << "Enter second number: ";

cin >> n2;

cout << "Enter third number: ";

cin >> n3;

small<int>(n1, n2, n3);

cout << endl;

float x, y, z;

cout << "Enter the first decimal point number : ";

cin >> x;

cout << "Enter the second decimal point number : ";

cin >> y;

cout << "Enter the third decimal point number : ";

cin >> z;

cout << endl;

small<float>(x, y, z);

cout << endl;

char fir, sec, thir;

cout << "Enter the first character : ";

cin >> fir;

cout << "Enter the second character : ";

cin >> sec;

cout << "Enter the third character : ";

cin >> thir;

cout << endl;

small<char>(fir, sec, thir);

return 0;

}

# Output:

# Question No. 10

#include <iostream>

using namespace std;

template <class T>

T area(T radius)

{

T pie = 3.1416;

T area;

area = pie \* radius \* radius;

cout << "The area the circle is: " << area << endl;

}

int main()

{

float rad;

cout << "Enter radius of the circle to calculate area of the circle: ";

cin >> rad;

area(rad);

return 0;

}

# Output:

# Question No. 11

#include <iostream>

using namespace std;

template <class T>

T swapping(T fir, T sec)

{

T temp;

cout << "Before Swapping First Value : " << fir << endl;

cout << "Before Swapping Second Value : " << sec << endl;

temp = fir;

fir = sec;

sec = temp;

cout << "\nAfter Swapping First Value : " << fir << endl;

cout << "After Swapping Second Value : " << sec << endl;

}

int main()

{

int num1 , num2;

cout << "Enter first integer value : ";

cin >> num1;

cout << "Enter second integer value : ";

cin >> num2;

swapping(num1, num2);

char first , second;

cout << "\nEnter first character value : ";

cin >> first;

cout << "Enter second character value : ";

cin >> second;

swapping(first, second);

}

# Output:

# Question No. 12

#include <iostream>

#include"Header1.h"

using namespace std;

int main()

{

cout << "Add:\t" << add(10, 20) << endl;

cout << "Subtract:\t" << subtract(50, 30) << endl;

cout << "Multiply:\t" << multiply(10, 20) << endl;

return 0;

}

# Header1.h

#include <iostream>

using namespace std;

float add(float num1, float num2, float num3 = 0, float num4 = 0, float num5 = 0)

{

float add = num1 + num2 + num3 + num4 + num5;

return add;

}

float subtract(float num1, float num2, float num3 = 0, float num4 = 0, float num5 = 0)

{

float subtract = num1 - num2 - num3 - num4 - num5;

return subtract;

}

float multiply(float num1, float num2, float num3 = 1, float num4 = 1, float num5 = 1)

{

float multiply = num1 \* num2 \* num3 \* num4 \* num5;

return multiply;

}

# Output:

# Question No. 13

#include <iostream>

#include "Input.h"

#include "Output.h"

using namespace std;

int main()

{

int x, y, z;

char a, b, c;

float j, k , l;

input(x, y, z);

output(x, y, z);

input(a, b, c);

output(a, b, c);

input(j, k, l);

output(j, k, l);

return 0;

}

# Input.h

#include <iostream>

using namespace std;

int input(int &num, int &num1, int &num2)

{

cout << "Input three int values: ";

cin >> num >> num1 >> num2;

}

char input(char &num, char &num1, char &num2)

{

cout << "Input three char values: ";

cin >> num >> num1 >> num2;

}

float input(float &num, float &num1, float &num2)

{

cout << "Input three float values: ";

cin >> num >> num1 >> num2;

}

# Output.h

#include <iostream>

using namespace std;

int output(int &num, int &num1, int &num2)

{

cout << "Three int values are: " << num << " " << num1 << " "<< num2 << endl;

}

char output(char &num, char &num1, char &num2)

{

cout << "Three char values are: " << num << " " << num1 << " "<< num2 << endl;

}

float output(float &num, float &num1, float &num2)

{

cout << "Three float values are: " << num << " " << num1 << " "<< num2 << endl;

}

# Output:

# Question No. 14

#include<iostream>

#include<cmath>

using namespace std;

int main()

{

double num1, num2;

cout << "Enter the first number : ";

cin >> num1;

cout << "Enter the second number : ";

cin >> num2;

double rad = (num1 \* 3.14159) / 180;

cout << "\nWith Variables: " << endl;

cout << "pow(" << num1 << "," << num2 << ") " << pow(num1, num2) << endl;

cout << "sin(" << num1 << ") " << sin(rad) << endl;

cout << "sqrt(" << num1 << ") " << sqrt(num1) << endl;

cout << "tan(" << num1 << ") " << tan(rad) << endl;

cout << endl;

cout << "\nWith Constants: " << endl;

cout << "pow(" << 5 << "," << 7 << ") " << pow(5, 7) << endl;

cout << "sin(" << 5 << ") " << sin(5) << endl;

cout << "sqrt(" << 5 << ") " << sqrt(5) << endl;

cout << "tan(" << 5 << ") " << tan(5) << endl;

return 0;

}

# Output:

# Question No. 15

#include<iostream>

#include<cmath>

using namespace std;

int main()

{

int num1, num2;

char option;

cout << "Enter 'p' to calculate power" << endl;

cout << "Enter 's' to calculate sin" << endl;

cout << "Enter 'r' to calculate squareroot" << endl;

cout << "Enter 't' to calculate tan" << endl;

cout << "Enter option: ";

cin >> option;

switch(option)

{

case 'p':

{

cout << "\nEnter first number: ";

cin >> num1;

cout << "Enter second number: ";

cin >> num2;

cout << "\nPower of " << num1 << " raise " << num2 << "= " << pow(num1, num2) << endl;

break;

}

case 's':

{

cout << "Enter the number: ";

cin >> num1;

double rad = (num1 \* 3.14159)/180;

cout << "\nThe sin(" << num1 << ") is: "<<sin(rad)<<endl;

break;

}

case 'r':

{

cout << "Enter the number: ";

cin >> num1;

cout << "\nThe squareroot of " << num1 << " is: " << sqrt(num1) << endl;

break;

}

case 't':

{

cout << "Enter the number: ";

cin >> num1;

double rad = (num1 \* 3.14159)/180;

cout << "\nThe tan(" << num1 << ") is: " << tan(rad) << endl;

break;

}

}

return 0;

}

# Output:

# Question No. 16

#include<iostream>

#include<cmath>

using namespace std;

template <class T>

T form(T x, T yc = 3, T xc = 3, T r = 7)

{

T y1, y2;

y1 = yc + sqrt(pow(r, 2) - pow((xc - x),2));

y2 = yc - sqrt(pow(r, 2) - pow((xc - x),2));

cout << "The value of y is: " << y1 << ", " << y2 << endl;

}

int main()

{

form(10);

form(11);

form(12);

form(13);

form(14);

form(15);

return 0;

}

# Output:

# Question No. 17

#include <iostream>

#include <cmath>

using namespace std;

template <class T>

T xcos(T A , T xc = 3, T r = 7)

{

T x;

T rad;

rad = (A \* 3.1416) / 180;

x = xc + (r \* cos(rad));

cout << "Value of 'x' for theta " << A << " is: " << x << endl;

}

template <class M>

M ysin(M A , M yc = 3, M r = 7)

{

M y;

M rad;

rad = (A \* 3.1416) / 180;

y = yc + (r \* sin(rad));

cout << "Value of 'y' for theta " << A << " is: " << y << endl;

}

int main()

{

// For 90 degrees

xcos(90);

ysin(90);

//For 120 degrees

xcos(120);

ysin(120);

}

# Output:

# Question No. 18

#include<iostream>

#include<cstdlib>

#include<ctime>

using namespace std;

int main() {

srand(time(NULL));

int randvalue = 1 + rand() % 6;

cout << randvalue << endl;

return 0;

}

# Output: