1. Write a program that will take a one-dimensional array of size , , containing integers and sorts them into ascending order. Your program should
   * Allow the user to input the value of and only accept values
   * Use an array to store the integers
   * Output the sorted array

Hint: You will need to use loops and if statements. Think about putting the smallest value into position array[0] first, then the second smallest value into position array[1], etc.

1. Write a program to find the dot product of two vectors. For the vectors and , the dot product . Your program should
   * Use a constant value of 10 for the size of the array
   * Allow the user to input the size of the vectors
   * Use a function to input the values of a vector
   * Use a function to calculate the dot product

Extra: Modify your program to calculate the angle, in degrees, between two vectors. Use the property .

1. Write a program to calculate the volume, correct to two decimal places, of a cylinder with integer radius and height . Your program should use one function to input both and (use reference variables), and one function to calculate and return the volume of the cylinder. The value of can be approximated using the value 3.14159 in a global constant.
2. Copy the program below into you C++ compiler. Determine what the program does and insert appropriate comments.

#include<iostream>;

using namespace std;

#include<iomanip>

const int SIZE=10;

void input\_vector(int[]);

void calculate\_average(int[], int&, float&);

int main()

{

int a[SIZE];

int n=0;

float average=0;

input\_vector(a);

calculate\_average(a,n,average);

cout<<"The average of the "<<n<<" numbers is "<<average;

}

void input\_vector(int vec[])

{

int score;

int n=0;

cout<<"Input: "<<endl;

do{

cout<<"Score "<<n+1<<": ";

cin>>vec[n];

n++;

}while (vec[n-1]>=0 && vec[n-1]<=100 && n<SIZE);

}

void calculate\_average(int vec[], int &n, float &xbar)

{

do{

xbar+=vec[n];

n++;

}while(vec[n]>=0 && vec[n]<=100);

xbar/=n;

}