Iqra National University Peshawar Pakistan
Department of Computer Science

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Q. 1 **Read A, B and C representing the three sides of a triangle. Write a program to find out its area the formula is given below:**
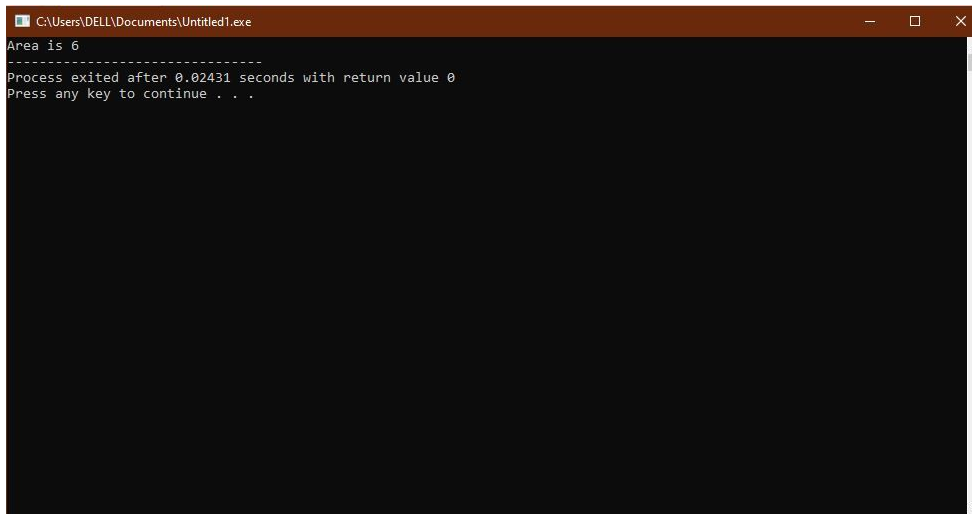
$$Area = \sqrt{S(S-A)(S-B)(S-C)}$$
Where S= $\frac{A+B+C}{2}$

Answer :

#include <bits/stdc++.h>

using namespace std;

 float findArea(float a, float b, float c)

{

   // Length of sides must be positive

   // and sum of any two sides

   // must be smaller than third side.

   if (a < 0 || b < 0 || c < 0 ||

     (a + b <= c) || a + c <= b ||

            b + c <= a)

   {

      cout << "Not a valid trianglen";

```cpp
        exit(0);

    }

    float s = (a + b + c) / 2;

    return sqrt(s * (s - a) *

            (s - b) * (s - c));

}
 // Driver Code
int main()
{

    float a = 3.0;

    float b = 4.0;

    float c = 5.0;

 cout << "Area is " << findArea(a, b, c);

    return 0;

}
```


Q. 2   **Write a C++ program to get marks obtained by a student in percentage *P* and then find the division according to the below rules:**

- **If Percentage P is above or equal to 60 then display..............1st Division.**
- **If Percentage P is between 50 & 59 then display....................2nd Division.**
- **If Percentage P is between 40 & 49 then display..................3rd Division.**
- **If Percentage P is less than 40 then display..........................Fail.**

```c
#include <stdio.h>

int main()
{
    int phy, chem, bio, math, comp;
    float per;

    /* Input marks of five subjects from user */
    printf("Enter five subjects marks: ");
    scanf("%d%d%d%d%d", &phy, &chem, &bio, &math, &comp);
    /* Calculate percentage */
    per = (phy + chem + bio + math + comp) / 5.0;
    printf("Percentage = %.2f\n", per);
    /* Find division according to the percentage */
    if(per >= 70)
    {
        printf("1st Division");
    }
    else if(per >= 60)
    {
        printf("2nd Division");
    }
```
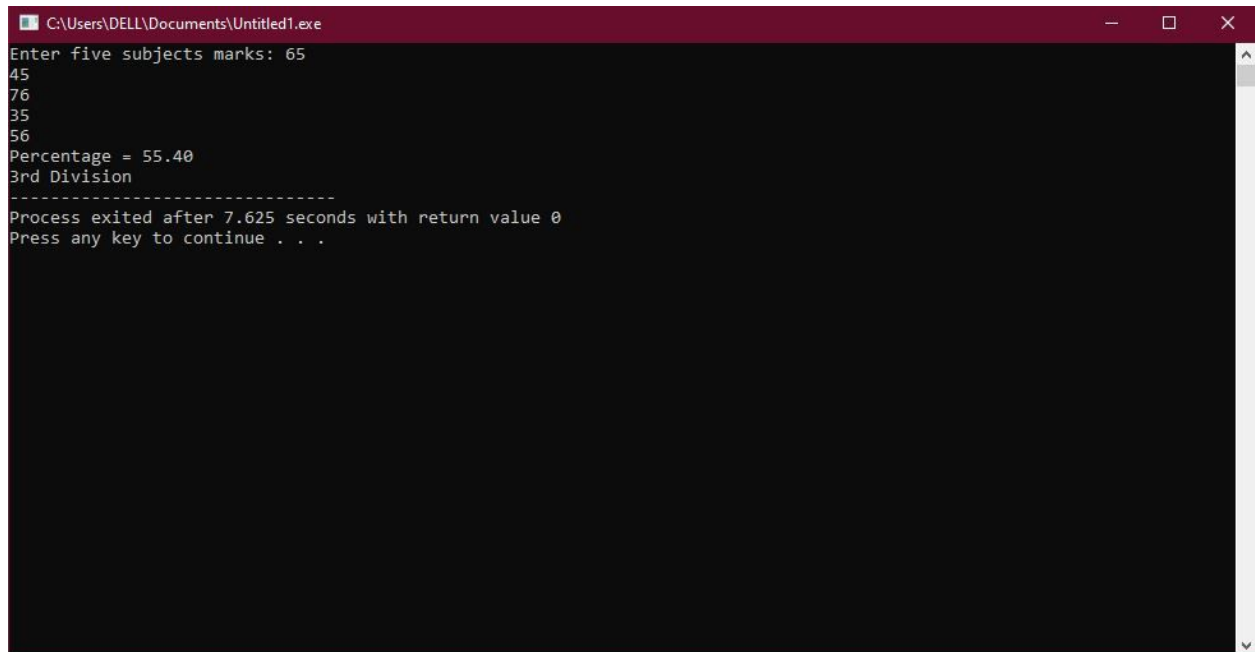
else if(per >= 50)

{

　　printf("3rd Division");

}

else if(per >= 40)

{

　　printf("Fail");

return 0;

}

}

```
C:\Users\DELL\Documents\Untitled1.exe                    —    □    ×
Enter five subjects marks: 65
45
76
35
56
Percentage = 55.40
3rd Division
------------------------------
Process exited after 7.625 seconds with return value 0
Press any key to continue . . .
```

Q. 3　**Write a C++ program to convert 5 feet to the equivalent number of (a) Inches (b) Yards. Where 1foot =12 Inches and 1 yard=3 feet)**

#include <iostream>

```cpp
using namespace std;

int
main ()
{
  int inches;
  int feet;
  int yards;

  cout << "Number of Inches\n";
  cin >> inches;
  cout << "Number of Yards is\n";
  yards = inches % 36;
  cout << yards;

  cout << "number of feet\n";
  feet = inches % 12;
  cout << feet;

  cout << "number of inches\n";
  cout << inches;
  yards = inches / 36;
  cout << yards;
  return 0;
}
```

```
C:\Users\DELL\Documents\Untitled1.exe                                    —    □    ✕
Number of Inches
45
Number of Yards is
9number of feet
9number of inches
451
------------------------------
Process exited after 3.604 seconds with return value 0
Press any key to continue . . .
```

Q.4 Write a C++ program to find the sum of the following series:

2+4+6+8+10

#include <iostream>

using namespace std;

int main()

{

   int i, n, sum = 0;

   cout << "\n\n Find the sum of the series 2+4+6+8+10 (n+n):\n";

   cout << "---\n";

   cout << " Input the value for nth term: ";

   cin >> n;

   for (i = 1; i <= n; i++)

      {

   sum += i + i;

```
        cout << i << "+" << i << " = " << i + i << endl;

    }

    cout << " The sum of the above series is: " << sum << endl;

}
```

```
C:\Users\DELL\Documents\Untitled1.exe                                    —    □    ×

 Find the sum of the series 2+4+6+8+10 (n+n):
 --------------------------------------------------------------------------------
 Input the value for nth term: 5
1+1 = 2
2+2 = 4
3+3 = 6
4+4 = 8
5+5 = 10
 The sum of the above series is: 30

 -------------------------------
Process exited after 3.575 seconds with return value 0
Press any key to continue . . .
```

Q.5 **Write a C++ program to input Hours Worked and Hour Rate of an Employee. Calculate and display the Gross-Pay, Tax and Net-Pay; where**

Gross-Pay=Hour-Worked*Hour-Rate

Tax=10% of Gross-Pay

Net-Pay=Gross-Pay – Tax

```
#include <iostream>

#include <stdio.h>

#include <stdlib.h>

using namespace std;


int

main ()

{
```

```cpp
double hourly_rate;
double hours;
double gross_pay;
printf ("Please input the hourly rate of the employee: ");
cin >> hourly_rate;
printf ("Please input the number of hours worked by the employee: ");
cin >> hours;

if (hours <= 40)
  {
    gross_pay = hours * hourly_rate;
  }
else
  {
    gross_pay = (40 * hourly_rate) + (hours - 40) * (hourly_rate * 1.5);
  }

cout << "The gross pay of this employee is $" << gross_pay << "." << endl;

system ("pause");
return 0;}
```

```
C:\Users\DELL\Documents\Untitled1.exe                                    —    □    ×

Please input the hourly rate of the employee: 5
Please input the number of hours worked by the employee: 5
The gross pay of this employee is $25.
Press any key to continue . . .

--------------------------------
Process exited after 12.39 seconds with return value 0
Press any key to continue . . .
```