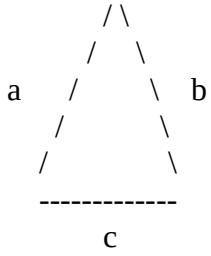
Computer Science 120

Project No.6 (<cmath> library, formula translations, tracing>

Write programs with the following I/O

1.



Sample I/O

Enter the value of sides a,b, and c: 10.4 6.2 5.4

The area of this triangle is xx.xx

Note: To compute the area of a triangle with sides a, b, and c use the following formula:

$$\text{Let } p=\frac{a+b+c}{2}, \text{ then } \text{Area}=\sqrt{p(p-a)(p-b)(p-c)}$$

2. Linda was standing on a bridge dropping rocks into the water below. She noted that it took 5 seconds for each rock to reach the water. Write a program to find the height of the bridge by using formula:

$$\text{Distance}= (GT^2)/2$$

Where Distance is the height of the bridge in meters;
G is a constant (gravity=9.81 meters/second^2),
and T is the time in seconds

Note. Declare gravity as constant

Sample I/O

Let's find the height of a bridge.
Drop a coin and tell me how long it took to hit the water: 10
OK, the height of the bridge is 490.50 meters

3. We want to assign a letter grade based on the following scaling chart. Write a program to do it

Enter your score: 85

Your grade is a "B"

0----------60---------70----------80----------90----------100

F D C B A

MUST use nested if-else statements

4. Trace the following by hand and write their final output

1. cout<< 5/2 + 2/5 + 5%2 + 2%5;

2. cout<<ceil(3.5) + floor(4.1);

3. x=5; y=8
   z= x++ * --y; cout<<z;

4. cout<<sqrt(9) + pow(float(3.0),float(2));

5. cout<<pow(float(4), float(1/2)) + pow(float(8), float(1/3));

6. cout<<"*****\n*****\n*****\n";

7. cout<<"\"Hello\"";

8. cout<<setfill('.');
   cout<<left<<setw(5)<<"Hi"<<right<<setw(5)<<"Bye";

9. a=5; b=2;
   b += a;
   b *= b-a;
   cout<<b;

10-12 Translate the following formulas to C++

Formula	C++
$A= a^b + b^{5/3}$	……
$B= \sqrt[4]{a + b}$	…….....
$C= \frac{5}{9}$ (F-32)	……

13-15 Evaluate each of the following expressions

Expression	Value
X=5*2 – 5%2;	……..
Y= 5%3*4 -3;	……..
Z=3*(10 – 3*2);	…….