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// Program #1 - Quadratic formula for real solutions
#include <iostream>
#include <cmath>
using namespace std;
double sgn( double x )
{
    double sign = 1.0;
    if ( x < 0.0)
        sign = -1.0;
    return( sign );
}
int main()
{
    doub1e a, b, c, disc, q, x1, x2, tmp;
    cout << "Quadratic Formula\n";
    cout << "To find the real solutions of ax^2+bx+c=0\n\n";
    cout << "Enter a, b, & c";
    cout << "\na = ";
    cin >> a;
    cout << "b = ";
    cin >> b; con = ";
    cin >> c;
    cout << endl;
    if ( a == 0.0 ) {
        cout << "You entered a=0. Your equation is not quadratic!\n";
        cout << "I'm continuing, but one (or both) "
            << "of your answers will be garbage.\n\n";
    }
    disc = b * b - 4.0 * a * c;
    if ( disc < O )
        cout << "There are no real solutions.";
    else {
        q = -0.5 * ( b + sgn( b ) * sqrt( disc ) );
        x1 = q/a;
        x2 = c / q;
        if ( x2 < x1 ) {
            tmp = x2;
            x2 = x1;
            x1 = tmp;
        }
        cout << "The solutions are:\n";
        cout << "x = " << x1 << " or x = " << x2;
    }
    cout << "\n\n"; system( "PAUSE" );
    return( 0 );
}
```

