Math 201 - Program #1

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1. Write, compile, and test a C++ program that finds the real solutions of the quadratic equation

$$ax^2 + bx + c = 0,$$

where a, b, and c are real numbers input by the user. Use the version of the quadratic formula that avoids loss of significance. All real variables should be type double. You should write and use a function with the header

```
double sgn( double x )
```

to determine the sign of b. Your program should produce output identical to the samples shown on the back of this page. The real solutions must be displayed in ascending order.

Sample Output #1

```
Quadratic Formula
To find the real solutions of ax^2+bx+c=0

Enter a, b, & c
a = -6
b = 4
c = 5

The solutions are:
x = -0.638492 or x = 1.30516

Press any key to continue . . .
```

Sample Output #2

```
Quadratic Formula
To find the real solutions of ax^2+bx+c=0

Enter a, b, & c
a = 3
b = 5
c = 8

There are no real solutions.

Press any key to continue . . .
```