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// Mr. Minich
// CMPSC 201
// Ch. 3 Demo Program #7
// Feb. 5, 2003
// Purpose - to illustrate a rounding algorithm that works for positive and negative
//           numbers.

#include <iostream.h>
#include <math.h>           // to use fabs

int main()
{
    double num = 0.0;      // number inputted by user
    int sign = 0;         // -1 if number is negative, +1 if number is positive
    double rounded = 0.0; // number rounded to hundredth's place

    cout << "Enter a number to be rounded to the nearest hundredth's place: ";
    cin >> num;

    sign = fabs (num) / num;           // sign is used to store +1 or -1 depending on the
                                        // the sign of the inputted value

    cout << "The sign of " << num << " is " << sign << endl;

    rounded = int (fabs(num) * 100 + 0.5) / 100.0; // rounding the absolute value of the
                                                    // inputted value

    rounded = sign * rounded;           // restoring the sign of the original
                                        // value

    cout << "The final rounded answer of " << num << " is " << rounded << endl;

    return 0;
} // end of main

```