Changing Variables q3

# Revision history

V 1.0: initial release

# usage history

# problem description

In this drill you are going to compute the value of a polynomial using a program.

Determine the value of y in the following expression:  
  
The user must enter values for the coefficients a, b, and c, and then a value for the variable x. Confirm that your code is correct by performing the same calculation by hand.

# Solution

#include <iostream>

**using** **namespace** std**;**

int main**()**

**{**

double a**,** b**,** c**,** x**,** y**;**

cout **<<** "Enter values for the coefficients a, b, and c," **<<** endl**;**

cout **<<** "Then a value for the variable x" **<<** endl**;**

cin **>>** a **>>** b **>>** c **>>** x**;**

y **=** a **\*** x **\*** x **+** b **\*** x **+** c**;**

cout **<<** y**;**

**}**

Note: the student could have chosen to use the pow function. In this case, I chose not to since my variable names were simple enough and I was just squaring a value. It would not be incorrect to use the pow function, and indeed it may make the code more clear.

# suggested test cases

Some suggested test cases:

* Let one of the coefficients be zero
* Let some combination of the coefficients be zero
* Let some coefficients be positive, some negative
* Test x = 0, -1, 1
* Test x = M\_PI (requires #include <cmath>), or some other approximation of an irrational number.

All student test cases should be confirmed by a hand calculation.

# required topics

* Using a computer to evaluate a mathematical function
* Design of good test cases
* Knowing if a computer is correct using hand computation