

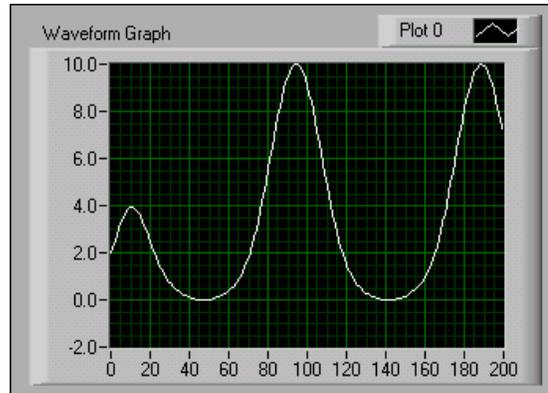
Exercise 6-4 Formula Node Exercise VI

Objective: To use the Formula Node.

Complete the following steps to build a VI that uses the Formula Node to perform a complex mathematical operation and graphs the results.

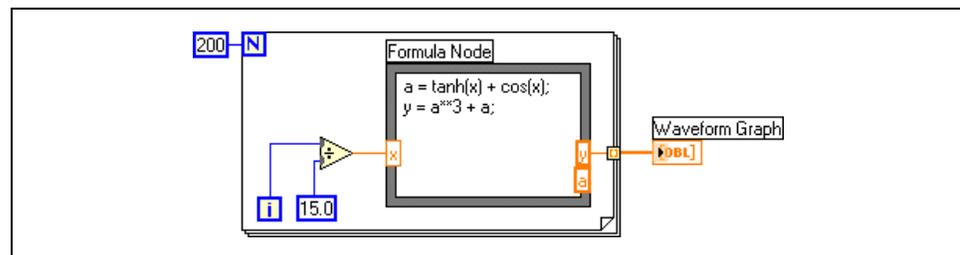
Front Panel

1. Open a new VI and build the following front panel.



Block Diagram

2. Build the following block diagram.



- a. Place the Formula Node located on the **Functions»Structures** palette.
- b. Create the **x** input terminal by right-clicking the left border and selecting **Add Input** from the shortcut menu.
- c. Create the **y** and **a** output terminals by right-clicking the right border and selecting **Add Output** from the shortcut menu. You must create output terminals for temporary variables like **a**.



Note When you create an input or output terminal, you must use a variable name that exactly matches the one in the equation. Variable names are case sensitive.

- d. Type the following equations in the Formula Node, where ****** is the exponentiation operator. Refer to the *LabVIEW Help* for more information about syntax for the Formula Node.

$a = \tanh(x) + \cos(x);$

$y = a^{**3} + a;$

3. Save the VI as `Formula Node Exercise.vi`.
4. Display the front panel and run the VI. The graph displays the plot of the equation $y = f(x)^3 + f(x)$, where $f(x) = \tanh(x) + \cos(x)$.

During each iteration, the VI divides the iteration terminal value by 15.0. The quotient is wired to the Formula Node, which calculates the function value. The VI plots the array as a graph.

5. Close the VI.

End of Exercise 6-4