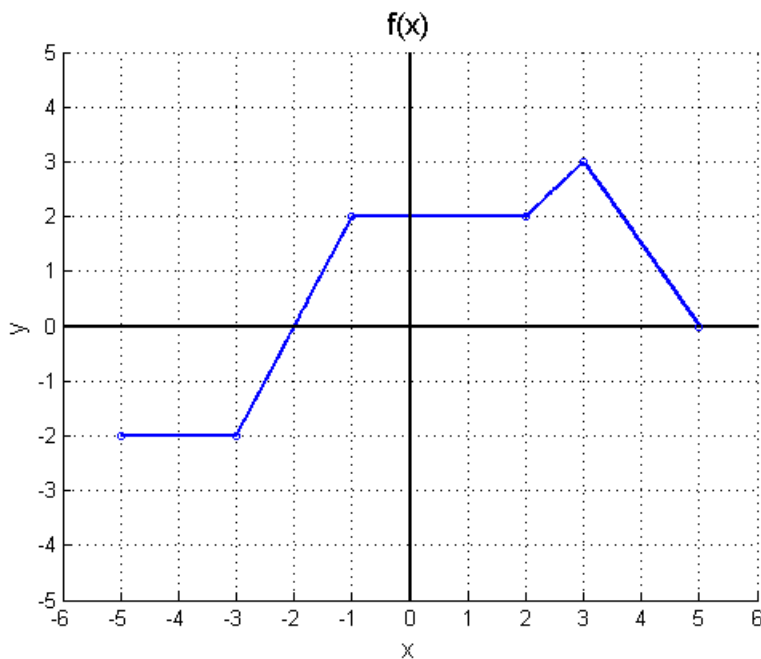


Graphing Transformations

College Ready Math

Below is the graph of a function $f(x)$:

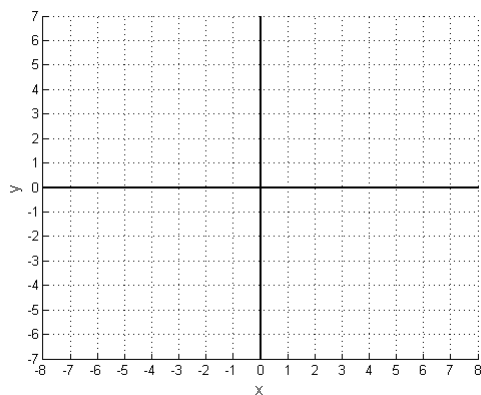


Review/warm-up questions:

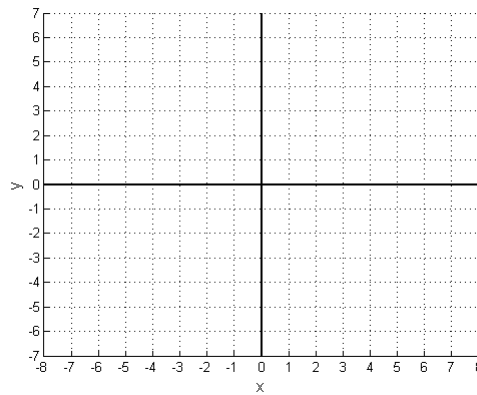
1. What is the domain of $f(x)$?
2. What is the range of $f(x)$?
3. What is the y -intercept?
4. Find the x -intercept(s).
5. Where is $f(x)$ decreasing?
6. Is $f(x)$ even, odd, or neither?
7. Find $f(2)$.
8. For what x is $f(x) = -1$?

Transformations

1. Reflect $f(x)$ across the x -axis, then shift the graph up one unit. Plot the result.
2. Shift $f(x)$ up one unit, then reflect the graph across the x -axis. Plot the result.

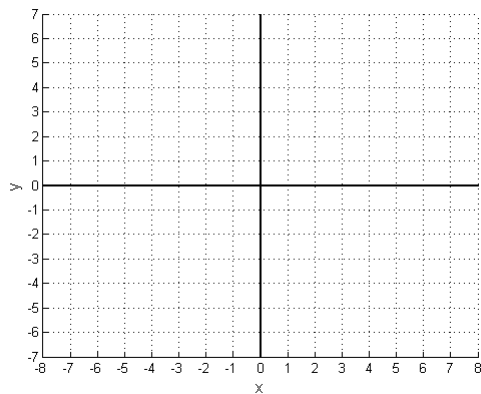


What is the resulting equation for this graph?

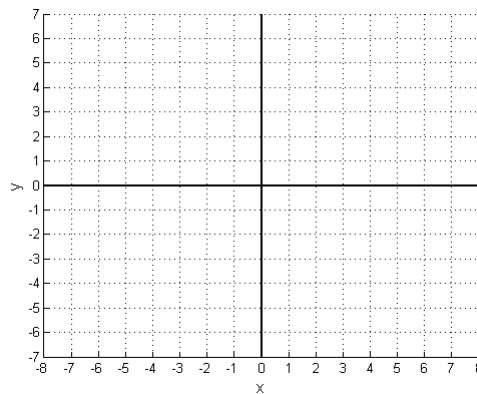


What is the resulting equation for this graph?

3. Are the graphs the same from #1 and #2? Are the equations the same? Does the order in which these transformations are applied matter?
4. Reflect $f(x)$ across the y -axis, then shift the graph left two units. Plot the result.
5. Shift $f(x)$ left two units, then reflect the graph across the y -axis. Plot the result.



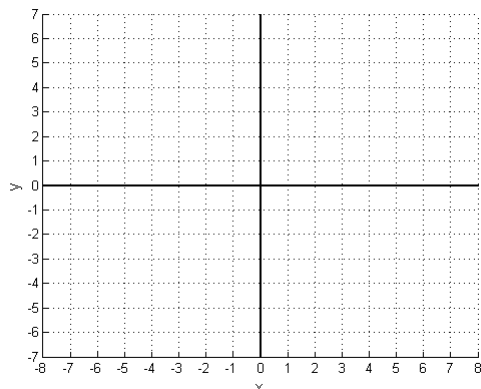
What is the resulting equation for this graph?



What is the resulting equation for this graph?

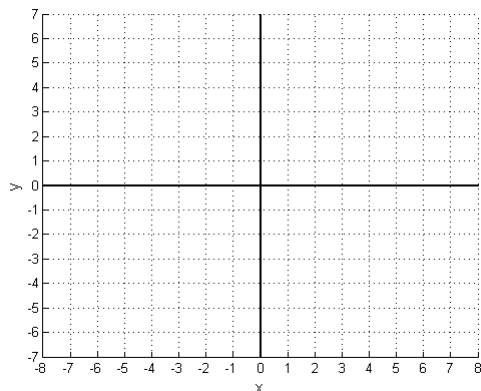
6. Are the graphs the same from #3 and #4? Are the equations the same? Does the order in which these transformations are applied matter?

7. Expand $f(x)$ vertically by a factor of 2, then shift the graph down two units. Plot the result.



What is the resulting equation for this graph?

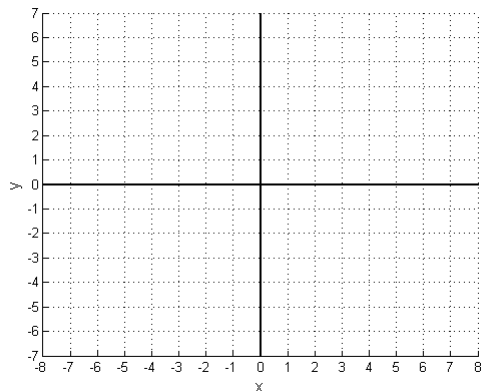
8. Shift $f(x)$ down two units, then expand the graph vertically by a factor of 2. Plot the result.



What is the resulting equation for this graph?

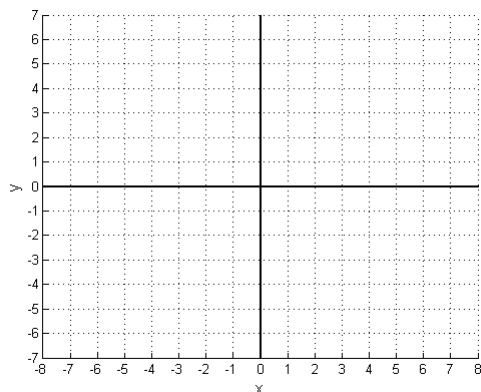
9. Are the graphs the same from #7 and #8? Are the equations the same? Does the order in which these transformations are applied matter?

10. Contract $f(x)$ horizontally by a factor of 2, then shift the graph right one unit. Plot the result.



What is the resulting equation for this graph?

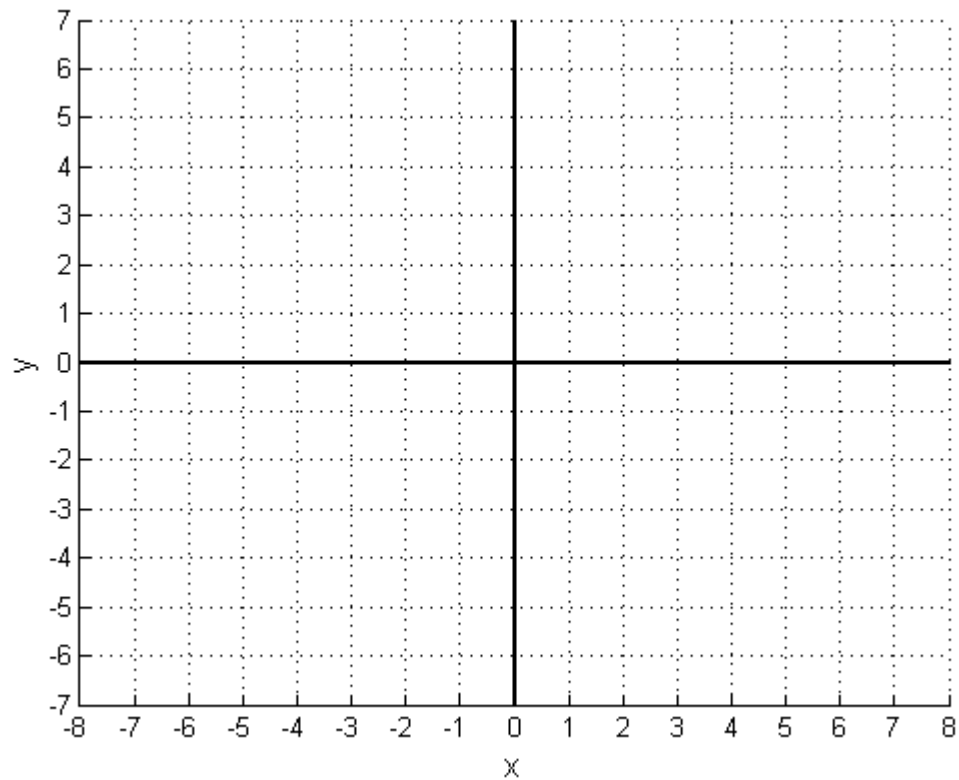
11. Shift $f(x)$ right one unit, then contract the graph horizontally by a factor of 2. Plot the result.



What is the resulting equation for this graph?

12. Are the graphs the same from #10 and #11? Are the equations the same? Does the order in which these transformations are applied matter?

13. Plot $y = -2f(1 - x) + 2$



14. Plot $y = \frac{1}{2}f(2x + 4) - 1$

