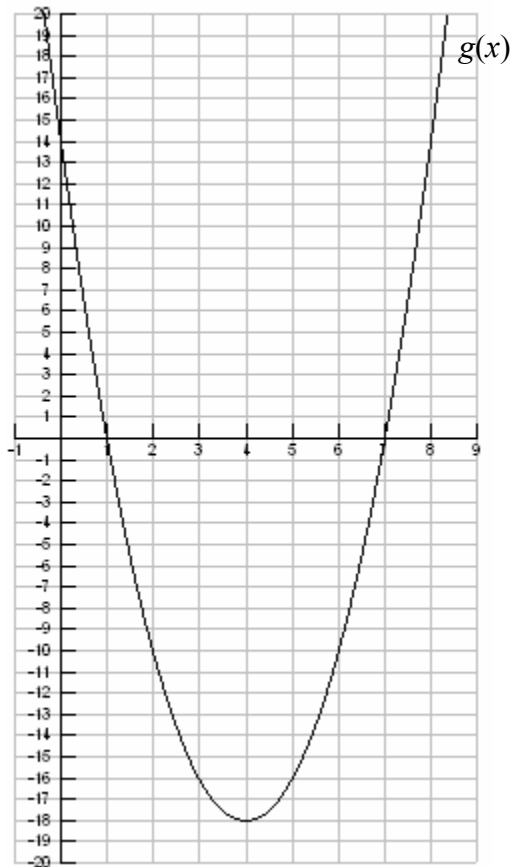


Three Formulas for a Quadratic Function

After your reading of Section 5.5, complete the following. You might find it helpful to reread Section 2.6

The function $g(x)$ shown in the graph is a translation of $f(x) = 2x^2$.

- (1) 1. Find a formula for $g(x)$ using the fact that it is a translation of $f(x) = 2x^2$.
Tip: Check with a grapher.
- (1) 2. Simplify the formula for $g(x)$ so that it has the form $g(x) = ax^2 + bx + c$ (standard form).
Tip: Check with a grapher.



- (1) 3. $g(x)$ is a quadratic function that can be factored. Write down the formula in factored form.
Tip: Check with a grapher
- (2) 4. Use the graph to find the coordinates of the vertex of $g(x)$. _____
Is there a connection between the **coordinates of the vertex** and the formula in Question 1? Explain.
- (2) 5. Use the graph to find where $g(x)$ crosses the y -axis. _____
Is there a connection between the **y -intercept** and the formula in Question 2? Explain.
- (2) 6. Use the graph to find where $g(x)$ crosses the x -axis. _____
Is there a connection between the **zeros (x -intercepts)** and the formula in Question 3? Explain.
- (1) 7. Write down three different formulas for $g(x)$.

vertex form: $g(x) =$ _____

standard form: $g(x) =$ _____

factored form: $g(x) =$ _____