



2. Find the quadratic function whose graph has a vertex at  $(-2, 5)$  and passes through the point  $(1, 2)$ .

3. If  $f(x) = \frac{2x - 5}{x + 7}$ , find  $f^{-1}(-3)$ .

4. Find the inverse function of  $f(x) = \frac{x + 1}{2x + 3}$ .

5. Let  $f(x) = \frac{3}{4x+1}$ ,  $g(x) = 3x^2 - 3x + 1$ , and  $h(x) = \frac{x-2}{x+2}$ .

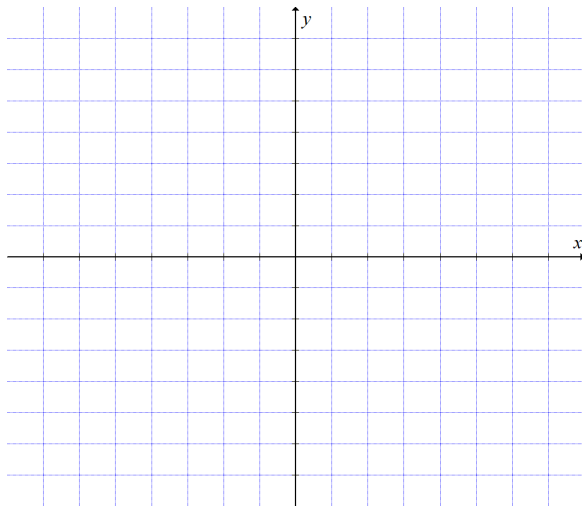
(a) Evaluate  $(g \circ f)(-2)$ .

(b) Find and simplify  $f \circ g$ .

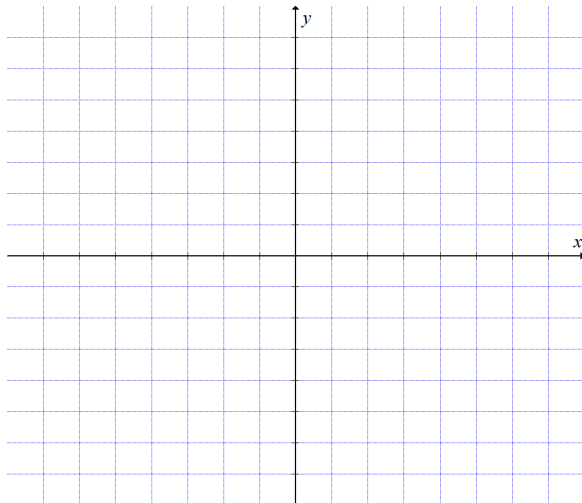
(c) Find and simplify  $h \circ f$ .

6. Using transformations, sketch the graph of each function labeling at least three points on the graph. Also, find the domain and range of the function.

(a)  $f(x) = |x - 5| - 7$



(b)  $g(x) = -\sqrt{x + 6} + 3$



7. Let  $f(x) = -2x^2 - 10x + 6$ .

(a) Rewrite this quadratic function in standard form by completing the square.

(b) Find the vertex.

(c) Find all intercepts.

(d) Find the maximum or minimum value of the function.

(e) Sketch its graph labeling the vertex and intercepts.

