

1. Determine the equation of the inverse of each of the following functions.

a) $f(x) = \frac{1}{2}x - 3$

b) $g(x) = \frac{3x+1}{4}$

c) $h(x) = 3(x+5)^2$

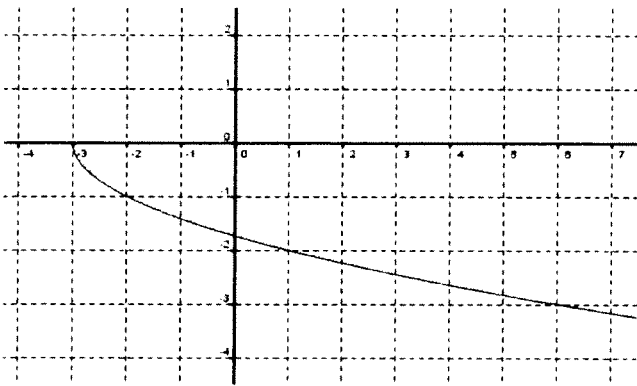
d) $i(x) = \frac{1}{2}x^2 + 6$

2. Graph the inverse of the function $y = 2(x+4)^2 - 3$.

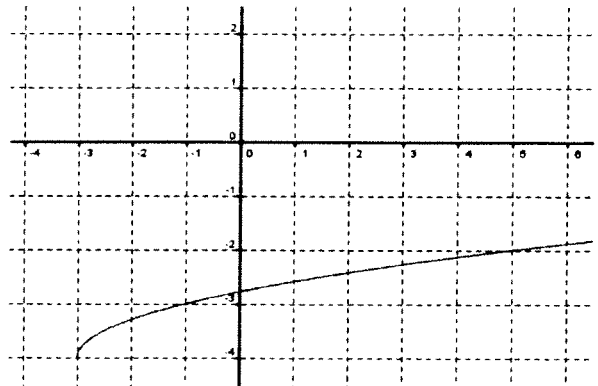
3. Graph the reciprocal of the function $y = 3x + 6$.

4. Determine equations for the functions shown in the graphs below.

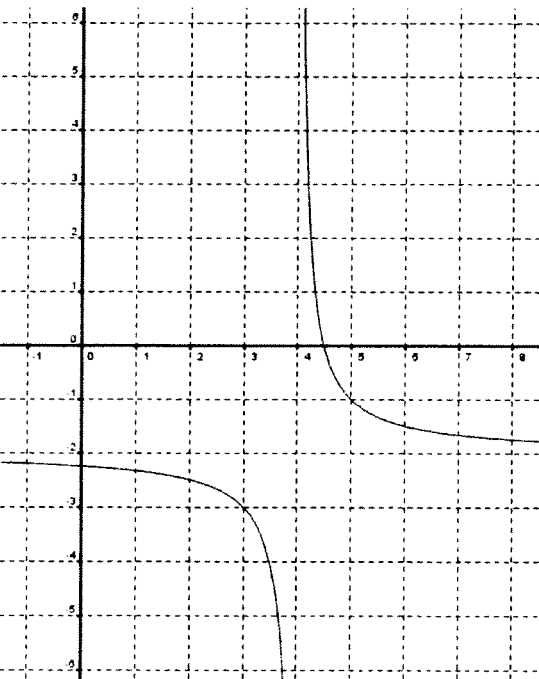
a)



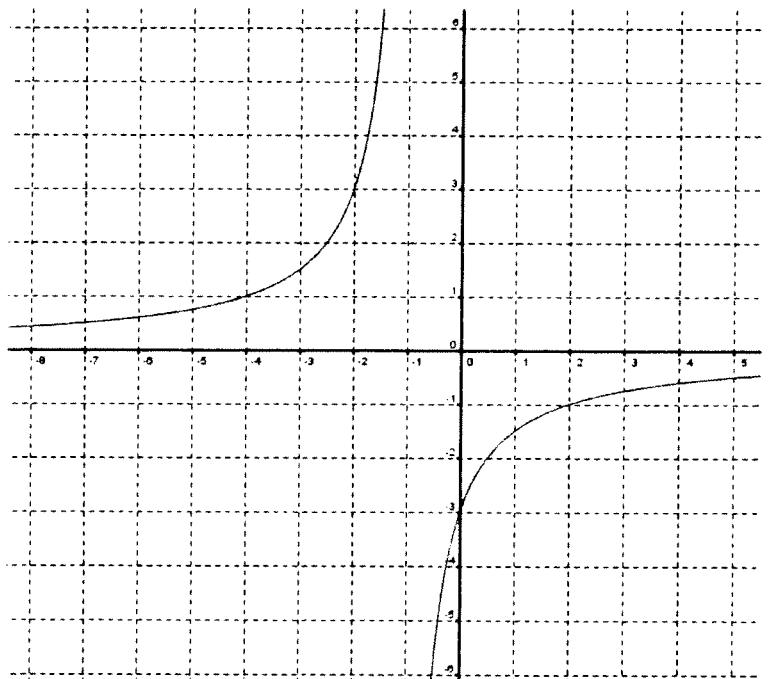
b)



c)



d)



5. Describe how to transform the base graph $f(x) = \sqrt{x}$ in order to graph each of the following functions.

a) $m(x) = 3\sqrt{x+4}$

b) $n(x) = \sqrt{-2x} - 5$

6. Graph each of the following functions. Mark all points in the domain and range of the grid provided.

a) $f(x) = 2 - \sqrt{x}$

b) $g(x) = \sqrt{4x-12}$

c) $h(x) = 2\sqrt{\frac{x-4}{3}}$

d) $k(x) = 2\sqrt{-x} + 1$

7. Graph each of the following functions. Mark all points in the domain and range of the grid provided.

a) $f(x) = \frac{1}{x-4} + 3$

b) $g(x) = \frac{1}{2-x}$

c) $h(x) = \frac{4}{x} - 1$

d) $k(x) = -\frac{1}{2x} + 3$

8. Simplify the following rational functions. State all restrictions and graph the function.

a) $y = \frac{3x+6}{x^2-2x-8}$

b) $n(x) = \frac{x^2+5x-6}{2x-2}$

9. Simplify the following rational expressions.

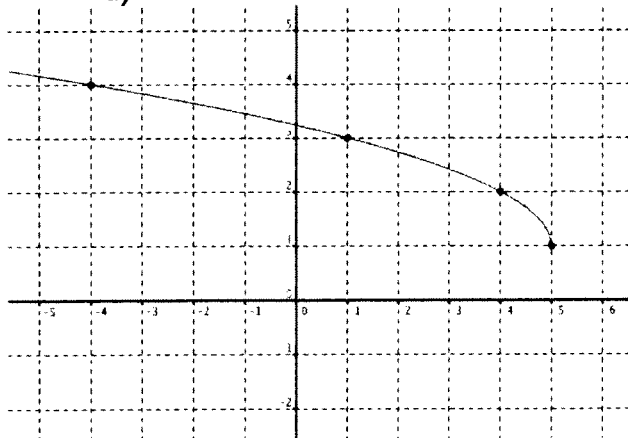
a) $\frac{8x-12}{x^2+9x+20} + \frac{4}{x+5}$

b) $\frac{3}{x+5} - \frac{2}{x+4}$

10. Expand and simplify the following radical expression: $(2 + \sqrt{2})(4 - \sqrt{18})$

11. Write an equation for each of the functions below, transformed from the base graph $f(x) = \sqrt{x}$.

a)



b)

