

1. Write a rational function that has is stretched by a factor of 3, has a vertical asymptote of  $x = 2$  and a horizontal asymptote of  $y = -1$

2. Given the rational function:  $r(x) = -\frac{3}{x-1} - 2$

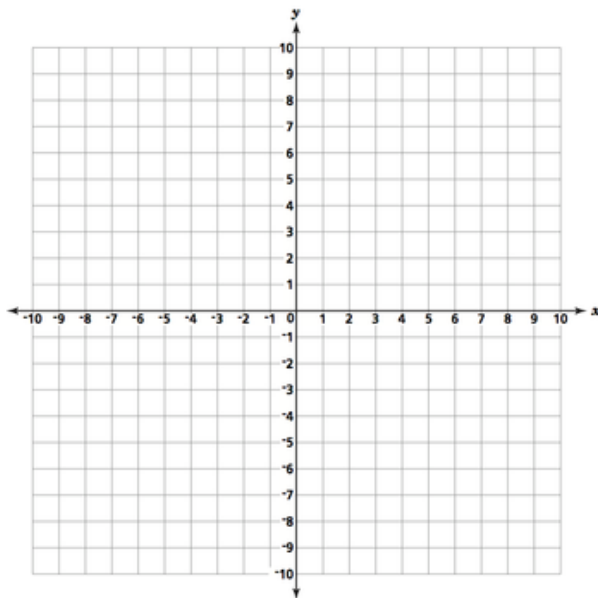
- a. Describe the transformation from the parent function  $f(x) = \frac{1}{x}$

- b. Use what you know about transformation to identify the asymptote(s) of  $r(x)$ .

- c. Give the domain and range of  $r(x)$ .

- d. Determine the  $x$  and  $y$  intercepts of  $r(x)$ .

- e. Sketch the graph of  $r(x)$ . Include all of the key information from parts a through d.



3. Solve for x.

a.  $9 = \sqrt{x-3} + 4$

b.  $\sqrt{x+1} + 5 = x$

c.  $(x+6)^{\frac{1}{2}} = -x$

d.  $(x+4)^{\frac{1}{2}} + 1 = 0$

4. Given the function,  $f(x) = \sqrt{x-1} + 2$  and the parent function  $g(x) = \sqrt{x}$ . Graph both functions.

