

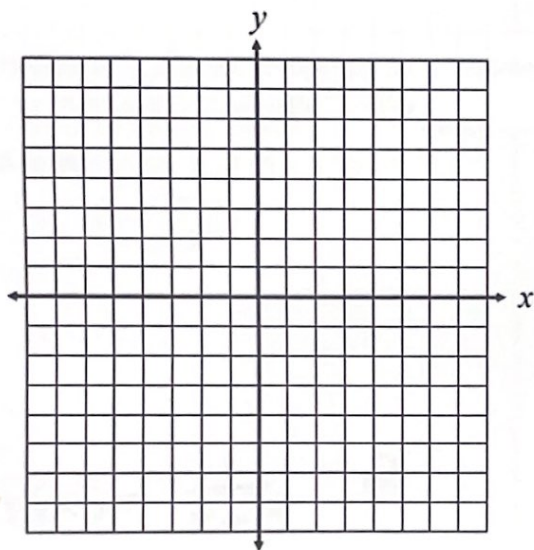
7.5 Writing Reciprocal Functions Practice

Directions: Write the equation of the reciprocal parent function and graph it. Identify its key features.

1. Parent Function:

see notes

$$f(x) = \frac{1}{x}$$



Type: _____

Domain: _____

Range: _____

Horizontal Asymptote:

Vertical Asymptote:

Directions: The following represent transformation from the reciprocal parent function. Write the equation to represent the new function and identify it's' asymptotes.

2. Translated 2 units left and 9 units down.

$$f(x) = \frac{1}{x+2} - 9$$

3. Reflected across the x-axis, then translated 5 units up.

$$f(x) = \frac{-1}{x} + 5$$

4. Vertically stretched by a factor of 4, then translated 3 units right.

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

5. Vertically stretched by a factor of 2, reflected across the x-axis, then translated 1 unit left and 8 units up.

$$f(x) = \frac{-2}{x+1} + 8$$

Directions: The vertical and horizontal asymptotes of a reciprocal function are given below. Write the equation that could represent the function.

6. Asymptotes: $x = 3$ and $y = -2$

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

7. Asymptotes intersect at $(-7, 0)$

$$f(x) = \frac{1}{x+7}$$

7.3 Complex fraction. Simplify

$$\frac{\frac{x+3}{x-3}}{\frac{x^2-9}{3x-9}}$$

$$\frac{\frac{5}{x+3}}{2 + \frac{1}{x+3}}$$

$$\frac{3}{x-3} \quad x \neq 3, 3$$

$$\frac{5}{2x+7} \quad x \neq -3, -\frac{7}{2}$$