

Name _____

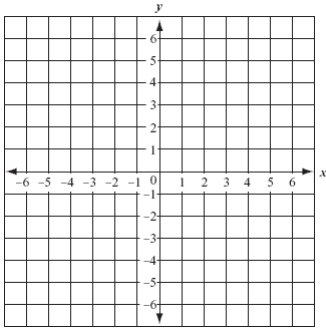
Date _____

Period _____

#1-3: Describe the transformation(s) of $y = \frac{a}{x-h} + k$ to the parent function $y = \frac{1}{x}$ used to create each function, graph the function (including the asymptotes), and fill in all the blanks.

1. $y = \frac{1}{x-2}$

Transformations: _____



Vert. asymptote: _____

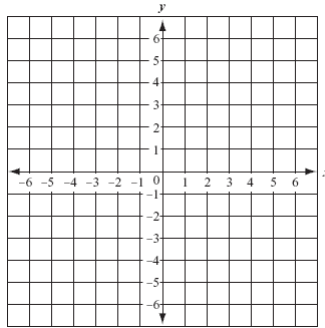
Horiz. asymptote: _____

Domain: _____

Range: _____

2. $y = \frac{-4}{x}$

Transformations: _____



Vert. asymptote: _____

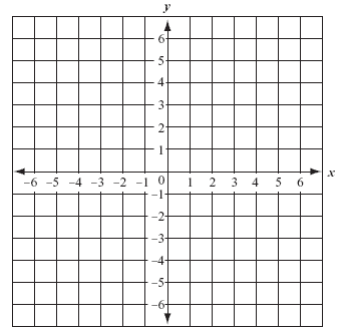
Horiz. asymptote: _____

Domain: _____

Range: _____

3. $y = \frac{-2}{x+1} - 3$

Transformations: _____



Vert. asymptote: _____

Horiz. asymptote: _____

Domain: _____

Range: _____

#4-5: Rewrite each function in the form $y = \frac{a}{x-h} + k$ and identify the horizontal and vertical asymptotes.

4. $y = \frac{2x+4}{x-1}$

Vertical asymptote: _____

Horizontal asymptote: _____

5. $y = \frac{x-1}{x+2}$

Vertical asymptote: _____

Horizontal asymptote: _____

#6-7: Simplify each expression and identify any excluded values.

6. $\frac{x^2 + 2x - 8}{x^2 - 9x + 14}$

7. $\frac{x^3 - 125}{2x^2 - 11x + 5}$

#8-9: Find the product.

8. $\frac{40x^4}{y^3} \cdot \frac{xy}{15x^2}$

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

#10-11: Find the quotient.

10. $\frac{x^2 - 9}{x + 2} \div \frac{x + 3}{x^2 - 4}$

11. $\frac{x^2 - 13x + 40}{x^2 - 2x - 15} \div (x^2 - 5x - 24)$

#12-13: Find the sum.

12. $\frac{p - 2}{2p} + \frac{p + 3}{3p}$

13. $\frac{5x}{x + 8} + \frac{4x - 9}{x^2 + 5x - 24}$

#14-15: Find the difference.

14. $\frac{5x}{x - 3} - \frac{15}{x - 3}$

15. $\frac{3}{x^2 - 1} - \frac{1}{x - 1}$

#16-18: Solve each equation. Check for extraneous solutions.

16. $\frac{x^2}{9} = \frac{x + 2}{2}$

17. $\frac{x + 1}{x + 6} + \frac{1}{x} = \frac{2x + 1}{x + 6}$

18. $\frac{x}{x - 2} - \frac{1}{x + 3} = \frac{10}{x^2 + x - 6}$