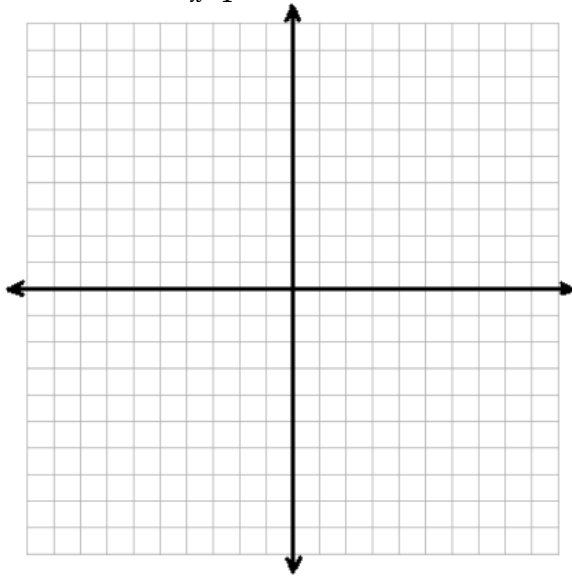


Name: _____ Date: _____ Band: _____
Algebra 2

Unit 8: Rational Functions Practice Problems

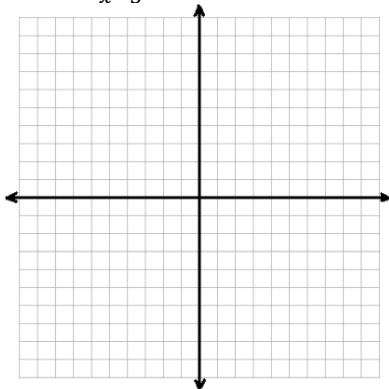
8.1 Graphing Rational Functions

1. Graph $y = \frac{2x+5}{x-1}$. State the domain and range.

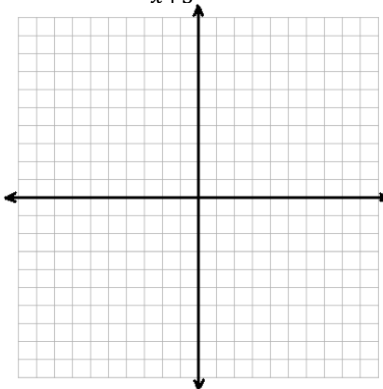


2. Graph the function. State the domain and range.

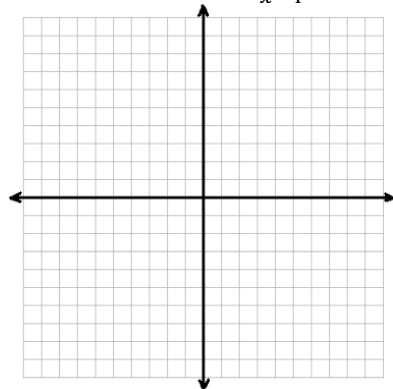
A. $y = \frac{4}{x-3}$



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



C. $f(x) = \frac{3x-2}{x-4}$



8.2 Multiplying and Dividing Rational Expressions

3. Find the quotient $\frac{3x+27}{6x-48} \div \frac{x^2+9x}{x^2-4x-32}$.

4. Find the product or quotient.

A. $\frac{80x^4}{y^3} \cdot \frac{xy}{5x^2}$

B. $\frac{x-3}{2x-8} \cdot \frac{6x^2-96}{x^2-9}$

C. $\frac{16x^2-8x+1}{x^3-7x^2+12x} \div \frac{20x^2-5x}{15x^3}$

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

8.3 Adding and Subtracting Rational Expressions

5. Find the sum $\frac{x}{6x+24} + \frac{x+2}{x^2+9x+20}$.

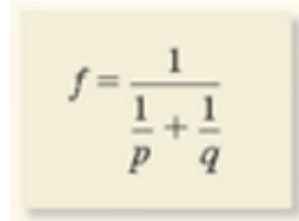
6. Find the sum or difference.

A. $\frac{5}{6(x+3)} + \frac{x+4}{2x}$

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

C. $\frac{x+2}{x^2+4x+3} - \frac{5x}{x^2-9}$

7. Let f be the focal length of a thin camera lens, p be the distance between the lens and an object being photographed, and q be the distance between the lens and the film. For the photograph to be in focus, the variables should satisfy the lens equation to the right. Simplify the complex fraction.


$$f = \frac{1}{\frac{1}{p} + \frac{1}{q}}$$

8.4 Solving Rational Equations

8. Solve $-\frac{4}{x+3} = \frac{x-1}{x+3} + \frac{x}{x-4}$.

9. Solve the equation. Check your solution(s).

A. $\frac{5}{x} = \frac{7}{x+2}$

B. $\frac{8(x-1)}{x^2-4} = \frac{4}{x+2}$

C. $\frac{2(x+7)}{x+4} - 2 = \frac{2x+20}{2x+8}$

10. Determine whether the inverse of f is a function. Then find the inverse.

A. $f(x) = \frac{3}{x+6}$

B. $f(x) = \frac{10}{x-7}$

C. $f(x) = \frac{1}{x} + 8$

11. At a bowling alley, shoe rentals cost \$3 and each game costs \$4. The average cost c (in dollars) of bowling n games is given by $c = \frac{4n+3}{n}$. Find how many games you must bowl for the average cost to fall to \$4.75 by (a) solving an equation, and (b) using the inverse of a function.