

Chapter 8 Review

Form G

Do you know HOW?**Write a function that models each variation.**

- $x = -1$ when $y = 5$. y varies inversely as x .
- $x = 3$ and $y = 12$ when $z = 2$. z varies directly with y and inversely with x .

Is the relationship between the values in each table a direct variation, an inverse variation, or neither? Write an equation to model any direct or inverse variation.

3.

x	-2	4	6
y	4	-8	-12

4.

x	-2	-1	3
y	$-\frac{1}{2}$	-1	$\frac{1}{3}$

Write a model for inverse variation for each of the ordered pairs given below.

5. $x = 1, y = -1$

6. $x = 5, y = \frac{1}{2}$

Simplify each rational expression. State any restrictions on the variable.

13. $\frac{3x^2 - 12}{x^2 - x - 6}$

14. $\frac{2x^2 - x}{4x^2 - 4x + 1} \div \frac{x}{8x - 4}$

Find the least common multiple of each pair of polynomials.

15. $x^2 - 16$ and $5x + 20$

16. $7(x - 2)(x + 5)$ and $2(x + 5)^2$

Simplify each sum or difference.

17. $\frac{2}{x+5} + \frac{x}{x-5}$

18. $\frac{3x}{x^2 - 4} - \frac{1}{x^2}$

Chapter 8 Review (continued)

Form G

Simplify each complex fraction.

19.
$$\frac{1 + \frac{2}{3}}{\frac{3}{4} - \frac{1}{3}}$$

20.
$$\frac{1 + \frac{1}{x}}{5 - \frac{1}{y}}$$

Solve each equation. Check each solution.

21.
$$\frac{x}{3} + \frac{x}{2} = 10$$

22.
$$\frac{y-3}{5} = \frac{y+1}{7}$$

23.
$$\frac{x}{2} = 2x - 3$$

24.
$$-\frac{x}{4} = \frac{2x}{3}$$

25.
$$\frac{1}{x} - \frac{1}{6} = \frac{4}{3x^2}$$

26.
$$\frac{2x-4}{x-5} = 0$$

27. Chad can paint a room in 2 h. Cassie can paint the room in 3 h. How long would it take them to paint the room working together?

28. How many milliliters of 0.65% saline solution must be added to 100 mL of 3% saline solution to get a 0.7% solution?