

9-1

Inverse Variation



Test Prep

Multiple Choice

60. Which equation does NOT represent inverse variation between x and z ? **B**

A. $x = \frac{y}{z}$

B. $x = \frac{-15z}{y}$

C. $z = \frac{-15y}{x}$

D. $xz = 5y$

61. If p and q vary inversely, and $p = 10$ when $q = -4$, what is q when $p = -2$? **F**

F. 20

G. $\frac{4}{5}$

H. $-\frac{4}{5}$

J. -20

62. Which equation shows that z varies directly with the square of x and inversely with the cube of y ? **A**

A. $z = \frac{x^2}{y^3}$

B. $z = \frac{x^3}{y^2}$

C. $z = \frac{y^2}{x^3}$

D. $z = \frac{y^3}{x^2}$

Short Response

63. Describe how the variables A and r vary in the formula for the area of a circle, $A = \pi r^2$. **See margin.**

Extended Response

64. Which data set shows inverse variation: (24.4, 4.8) and (9.6, 12.2), or (24.0, 4.5) and (18.0, 6.5)? Explain. **See margin.**

9-2

The Reciprocal Function Family

58. Which expression equals $\frac{5x}{x^2 - 9} - \frac{4x}{x^2 + 5x + 6}$? **C**

A. $\frac{7x}{(x-3)(x+3)(x+2)}$

B. $\frac{x^2 - 2x}{(x-3)(x+3)(x+2)}$

C. $\frac{x^2 + 22x}{(x-3)(x+3)(x+2)}$

D. $\frac{9x^2 - 2x}{(x-3)(x+3)(x+2)}$

59. Simplify $\frac{\frac{2}{6} - 5}{\frac{6}{6} - 3}$. **F**

F. $\frac{2 - 5x}{6 - 3x}$

G. $\frac{2 + 5x}{6 - 3x}$

H. $\frac{2x - 5}{6x + 3}$

J. $\frac{6 + 3x}{2 - 5x}$

9-6

Solving Rational Equations



Test Prep

Multiple Choice

59. What is the complete solution set of $\frac{3}{x^2 - 1} + \frac{4x}{x + 1} = \frac{1.5}{x - 1}$? **C**

A. 1, -1

B. 1, 0.375

C. 0.375

D. 0.375, 3

60. What is the solution of $x + \frac{1}{x} = -2$? **J**

F. 1 or -1

G. 0 only

H. $-\frac{1}{2}$ only

J. -1 only

61. How many roots does the equation $\frac{2}{x^2} + \frac{1}{x} = 0$ have? **B**

A. 0

B. 1

C. 2

D. 3

62. Solve $\frac{2}{x+7} = \frac{x}{x^2 - 49}$. **F**

F. 14 only

G. 7 only

H. 7 or -7

J. -7 only

Short Response

63. A large snowplow can clear a parking lot in 4 hours. A small snowplow needs more time to clear the lot. Working together, they can clear the lot in 3 hours. How long would it take the small plow to clear the lot by itself? Show your work. **See margin.**

Extended Response

64. Solve and check the equation $\frac{x}{3x+9} = \frac{x+2}{x+3}$. Show your work. **See margin.**