

Math 080
Rational Expressions and Equations Worksheet

Simplify and state the domain.

1. $\frac{4x^2y^3 + 12x^4y - 25x^3y^5}{4x^2y}$

2. $\frac{ab - bc + ad - dc}{ab + bc + ad + dc}$

3. $\frac{3a^2 + 17ab + 10b^2}{6a^2 + 13ab - 5b^2} \div \frac{6a^2 + ab - 2b^2}{6a^2 - 5ab + b^2}$

4. $\frac{x}{x^2 - 9} - \frac{4(x+3)}{x - 3}$

5. $\frac{3}{z^2 - 13z + 36} + \frac{4}{2z^2 - 7z - 4} + \frac{1}{2z^2 - 17z - 9}$

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

7. $\frac{y^{-1} - x^{-1}}{x^{-1} + y^{-1}}$

Solve.

8. $\frac{2}{x - 5} = \frac{22}{2x^2 - 9x - 5} - \frac{3}{2x + 1}$

9. $\frac{1}{p} + \frac{1}{q} = \frac{1}{f}$ for q

10. $\frac{4a + 3}{a^2 + 11a + 30} - \frac{3}{a + 6} = \frac{2}{a + 5}$

11. Millhouse and Bart can dig a trench in 2.7 hours working together. It takes Millhouse one hour more than Bart to dig a trench by himself. How long does it take for Millhouse to dig the trench?

12. A car and a train leave from a station and travel 400 miles to the city. If the speed of the car averages twice the speed of the train and the car arrives in 6.5 hours before the train, find the speed of the car.

13. A varies jointly as R_1 and R_2 and inversely as the square of L . When $A = 5$, R_1 is 30, R_2 is 4, and L is 10. Find R_1 when R_2 is 10, A is 4, and L is 5.

14. The wattage rating of an appliance, W , varies jointly as the square of the current, I , and the resistance, R . If the wattage is 3 watts when the current is 0.1 ampere and the resistance is 100 ohms, find the current if the wattage is 4 watts and the resistance is 20 ohms.