

Algebra II Topics and Assignments

Unit 5: Rational Expressions

Topic: Simplify/Multiply/Divide Rational Expressions

Assignment: 5-1 p.558 #18-48 (x3), 66-72, 73 solve don't graph

Topic: Add & Subtract Rational Expressions

Assignment: 5-2 p.565 #5-7, 16, 17, 27-37 odd, 59, 64-71

Topic: Complex Fractions

Assignment: 5-3 p.565 # 8-10, 38-40, 42

p.558 #22, 23, 28, 37, 38, 40, 47

Topic: Solving Rational Equations

Assignment: 5-4 p.571 # 21-48 (x3), 50, 63-67, 70, 74-76

p.574 Quiz 2 #1-6

Topic: Rational Equations & Expressions Practice

Assignment: 5-5 p.579 # 16-28

Topic: Applications with Rational Equations

Assignment: 5-6 Worksheet #1-8 (Supplement p.5-3)

Topic: Review

Assignment: 5-7 p.577 #16-31

p.951 #80-82, 86, 92, 93

Additional Problems (Supplement p.5-4)

Topic: Unit 5 Test: Rational Expressions

Assignment: 5-8 p.588 #1-12

Practice B

Name: _____

LESSON 9.4 (For use with pages 554-560)

If possible, simplify the rational expression.

1. $\frac{x^2 - 8x - 9}{x^2 - 1}$ 2. $\frac{x + 3}{x^2 + 5x + 6}$ 3. $\frac{x^2 - 4}{x^2 + 4}$

Multiply the rational expressions. Simplify the result.

4. $\frac{4x^2y^3}{x^5y^6} \cdot \frac{xy}{20x^3}$ 5. $\frac{81x^9}{y^4} \cdot \frac{x^2}{36x^5y}$ 6. $\frac{x^2 + 4x - 12}{x^4 + 9x^3 + 18x^2} \cdot 6x^2$ 7. $\frac{3x^2 - 12}{5x - 10} \cdot \frac{1}{2x + 4}$

Divide the rational expressions. Simplify the result.

8. $\frac{12x^2y}{5y^2} \div \frac{3x^2}{2xy}$ 9. $\frac{x^2 - 3x + 2}{25x} \div \frac{x - 1}{5x^2}$ 10. $\frac{5x^2 - 20}{25x^2} \div \frac{x^2 + 6x + 8}{x^2 + 10x + 24}$ 11. $(x + 7) \div \frac{x^2 + 9x + 14}{x^2 + 5x + 6}$

Perform the indicated operations. Simplify the result.

12. $(x^2 + x - 30) \div \frac{x^2 - 2x - 15}{x^2 + 7x + 12} \cdot \frac{x - 5}{x + 6}$ 13. $\frac{x^2 + x - 20}{x + 1} \div \frac{33x^2 - 132x}{16x + 16} \div \frac{8x + 40}{11x + 44}$

14. $\frac{x^2 + 6x - 7}{3x^2} \cdot \frac{6x}{x + 7} \div \frac{x - 1}{4}$ 15. $\frac{3xy^3}{x^3y} \cdot \frac{y}{6x} \div \frac{9y^2}{xy}$

LESSON 9.5 (For use with pages 562-567)

Find the least common denominator.

1. $\frac{5}{2x + 1}, \frac{6}{4x^2 - 1}$ 2. $\frac{3}{x + 4}, \frac{x + 2}{4}$ 3. $\frac{4}{x^2 - 1}, \frac{5}{x(x + 1)}$

Perform the indicated operation(s) and simplify (if possible).

4. $\frac{7}{x - 2} + \frac{x}{x - 2}$ 5. $\frac{x}{x^2 + x - 2} + \frac{1}{x + 2}$ 6. $\frac{x}{x^2 - x - 30} - \frac{1}{x + 5}$

7. $\frac{4}{x} - \frac{2}{x^2} + \frac{4}{x + 3}$ 8. $\frac{x + 2}{x - 1} - \frac{2}{x + 6} - \frac{14}{x^2 + 5x - 6}$ 9. $\frac{x}{x^2 - 9} + \frac{3}{x(x - 3)}$

10. $4 - \frac{5}{x + 3}$ 11. $\frac{1}{3} + \frac{3}{x} - \frac{4}{x^2}$

Simplify the complex fraction.

12. $\frac{\frac{1}{x} + \frac{1}{2x + 1}}{\frac{4x}{2x + 1}}$ 13. $\frac{\frac{1}{3x} - \frac{4}{x + 2}}{\frac{x}{x + 2} + \frac{1}{x}}$ 14. $\frac{\frac{2}{4x + 12}}{\frac{4}{2x + 6} + \frac{1}{x + 3}}$

Scrambled answers for Practice B, Lesson 9.4 & 9.5

$$\frac{3x+1}{4x^2} \quad \frac{3}{10} \quad \frac{y^2}{18x^2} \quad \frac{x}{x-1} \quad \text{not possible} \quad \frac{9x^6}{4y^5} \quad \frac{1}{6} \quad 4(x+4) \quad \frac{x^2+3x+9}{x(x+3)(x-3)}$$

$$\frac{8x}{5} \quad (2x+1)(2x-1) \quad \frac{x-9}{x-1} \quad \frac{x(x-2)}{5} \quad \frac{8}{x} \quad \frac{x+7}{x-2} \quad \frac{(x-2)(x+6)}{5x^2}$$

$$\frac{1}{5x^5y^2} \quad \frac{2x-1}{(x+2)(x-1)} \quad \frac{1}{x+2} \quad (x+4)(x-5) \quad \frac{4x+7}{x+3} \quad \frac{x^2+9x-12}{3x^2} \quad \frac{2-11x}{3(x^2+x+2)}$$

$$x+3 \quad \frac{2(x+4)}{3x} \quad \frac{6(x-2)}{x+3} \quad \frac{2(4x^2+5x-3)}{x^2(x+3)} \quad x(x+1)(x-1) \quad \frac{6}{(x-6)(x+5)}$$

RATIONAL EXPRESSION APPLICATIONS

1. Bill can mow the lawn in 5 hours while Jane can mow the lawn in 3 hours. How long will it take if they work together?
2. Pump A can unload an oil tanker in 30 hours and pump B can unload the ship in 24 hours. How long will it take if both pumps are used?
3. A town's old street sweeper can clean the streets in 60 hours. If the sweeper is added to a new sweeper, the streets can be cleaned in 15 hours. How long would it take the new sweeper to do the job alone?
4. Pump A can empty the town swimming pool in 7 hours less time than pump B can. Together, they can empty the pool in 12 hours. How much time would it take pump B to empty the pool alone.
5. Working alone, Hal can mow the lawn in 3 hours and Kevin can mow it in $4\frac{1}{2}$ hours. Suppose that they work together for 1 hour and then Kevin leaves. How long will it take to Hal to finish?
6. A pump can fill a reservoir tank in 25 minutes. A second pump takes twice as long. How long will it take to fill the tank using both pumps?
7. The fill pipe can fill a tank in 3 hours and the drain pipe can drain the tank in 1 hour. If both pipes are accidentally opened, how long will it take to empty a tank filled with water?
8. Lance can do a job in 30 minutes, Bob in 40 minutes, and Sid in 50 minutes. How long will it take them if they all work together?

Scrambled Answers	700 km/hr	17 hrs & 21 hrs	5 km	16 min 40 sec	
$\frac{2}{3}$ or 5	12 $\frac{36}{47}$ min	61 mi/g	13 $\frac{1}{3}$ hrs	20 hrs	1 hr 30 min
1 hr 20 min	6 & 9	28hrs	1.5 hrs	23 hrs	1 $\frac{7}{8}$ hrs

Unit 5: Rational Expressions & Equations Review Assignment

p.577 #16-31

p.951 #80-82, 86, 92, 93

Additional Problems

Solve:

1. $\log_2 x + \log_2(x-7) = 3$ 2. $\log_6(x+5) + \log_6 x = 2$ 3. $\ln x = 7$

4. $5 \log_3 x = 20$

Condense:

5. $\log_5 3 + \log_5 4$ 6. $2 \ln 3$

7. Sam can weed his garden in 2 hours. It takes his brother 5 hours! How long will it take the two brothers working together.

8. Mrs. Cabrera can pluck a turkey in 30 minutes. Mr. Hartman takes 90 minutes to pluck a turkey. They work together plucking the same turkey for 15 minutes. Mr. Hartman leaves to sit in front of the TV, eat snacks, and watch football. How much longer will it take Mrs. Cabrera to finish plucking the turkey?

Answers

p.577 16) $(x-3)(x+2)$ 17) $5(x-6)(x+3)(x-3)$ 18) $\frac{x^2-x-4}{x+4}$ 19) $\frac{x^3+5}{x^2(x-2)}$
 20) $\frac{x^2+7x+40}{(x+5)(x-5)}$ 21) $\frac{-9x^2+18x-10}{5x(x-1)(x+5)}$ 22) $\frac{1}{2}$ 23) $\frac{x(x-8)}{2(9x+2)}$ 24) $\frac{2}{x-1}$ 25) $\frac{12}{5}$ 26)
 $\{-2,5\}$ 27) $\frac{3}{2}$ 28) $\{0,3\}$ 29) no solution 30) 4 31) $\{-4,1\}$

p.951 80) $\log_4 35$ 81) $\ln x^4 y^6 z^3$ 82) $\log_4 243x^6 y^7$ 86) 2.10 92) 81 93) 5

Add. Prob: 1) 8 2) 4 3) e^7 4) 81 5) $\log_5 12$ 6) $\ln 9$ 7) $1\frac{3}{7}$ hours 8) 10 minutes