

Chapter 9b - Rational Expressions - Review Sheet

Review is due on day of test. You must show all work on a separate sheet of paper. No work or answers shown on this page will receive any credit.

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

1. $\frac{a^2 + 3a - 18}{a + 6}$

2. $\frac{x^2 + 9x + 14}{x^2 + 3x - 28}$

Multiply or divide. State any restrictions on the variables.

3. $\frac{a^2}{8b^3} \cdot \frac{3b^5}{8a^3}$

4. $\frac{a^2}{a + 3} \cdot \frac{a^2 - 2a - 15}{a^2 - 1a}$

5. $\frac{x^2 + x - 2}{x + 3} \cdot \frac{x^2 - 7x - 30}{2x^2 - x - 1}$

6. $\frac{w + 2}{w + 1} \div \frac{w - 5}{w^2 + 3w + 2}$

7. $\frac{x^2 - 9}{x^2 + 5x + 6} \div \frac{x^2 + 2x - 15}{x^2 + x - 20}$

Find the least common multiple.

8. $x^2 + x - 12$ and $x^2 + 2x - 15$

9. $x^2 - 11x + 30$ and $x^2 - 10x + 24$

Add or subtract. Simplify if possible.

10. $\frac{7}{c + 4} + \frac{1}{c^2 - 16}$

11. $\frac{w^2 - 11w + 24}{w^2 - 7w + 12} - \frac{3}{w - 4}$

12. $\frac{c^2 - 7c + 10}{c^2 - 9c + 14} + \frac{c^2 - 12c + 35}{c^2 - 6c + 5}$

Simplify the complex fraction.

13. $\frac{\frac{3}{y} - \frac{2}{2y}}{\frac{4}{y} + \frac{4}{4y}}$

14. $\frac{\frac{1}{x+2}}{\frac{2}{x} - 5}$

15. $\frac{\frac{d+5}{d^2+11d+24}}{\frac{d+2}{d+3}}$

16. $\frac{x + \frac{4x}{y}}{\frac{7}{3x}}$

Solve the equation. Check the solution.

17. $\frac{-2}{x-5} = \frac{2}{x+3}$

18. $\frac{2}{x+2} = \frac{-3}{x+3}$

19. $\frac{x}{x^2-25} + \frac{4}{x-5} = \frac{1}{x+5}$

20. $\frac{1}{2d} + \frac{6}{5d} = -3$

21. If R is the total resistance for a parallel circuit with two resistors of resistances r_1 and r_2 , then $\frac{1}{R} = \frac{1}{r_1} + \frac{1}{r_2}$. Find the resistance r_1 if the total resistance R is 65 ohms and r_2 is 90 ohms. Round your answer to the nearest ohm if necessary.
22. A school club bought a bunch of tables from IKEA, but they have to put them together. Working alone, James can put together a table in 3 hours. Stewart can put together a table in 7 hours. Write an equation that can be used to find how long it will take them working together to build a table. How many hours will it take them to put together a table? If necessary, round your answer to the nearest hundredth.
23. You and your brother work together cleaning the house for your mom. Usually you work together, and it takes three and a half hours to clean the entire house. Your brother has done it by himself before, and it takes him 5 hours to do by himself. How long would it take you to clean the whole house by yourself?
24. Joseph can row 7 miles downstream in the same time it takes him to row 3 miles upstream. He rows downstream 5 miles/hour faster than he rows upstream. Find Joseph's rowing rate each way. Round your answers to the nearest tenth, if necessary.
25. You can bike 8 miles in the same time it takes your friend to walk 2 miles. You ride your bike 15 miles per hour faster than your friend can walk. How fast are you and your friend going?