

Name: _____

Algebra 2

Date: _____ Per: _____

Unit 8: Rational Functions

8-1: Simplifying & Operations with Rational Expressions

Simplify each expression.

1. $\frac{20x^2 + 30x}{4x^4 + 6x^3}$

2. $\frac{k^2 + 13k + 40}{k^2 - 2k - 35}$

3. $\frac{7n - 42}{36 - n^2}$

4. $\frac{6a^2 + 5a - 6}{3a^2 - 5a + 2}$

1. _____

2. _____

3. _____

4. _____

Find each product or quotient.

5. $\frac{5w + 20}{3w + 15} \cdot \frac{7w + 35}{10w + 40}$

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

7. $\frac{3m^3}{m^2 - 25} \cdot \frac{m^2 + 6m + 5}{m^2}$

8. $\frac{7x^4}{24y^5} \div \frac{21x}{12y^4}$

5. _____

6. _____

7. _____

8. _____

$$9. \frac{p^2 - 2p}{p^2 + 7p - 18} + \frac{p^2 - 11p + 18}{p^2 - 81}$$

$$10. \frac{r^2 - 3r - 10}{2r^2 - 11r + 5} + \frac{r^2 - 5r + 6}{2r^2 - 7r + 3}$$

9. _____

10. _____

Find each sum or difference.

$$11. \frac{4}{15v} + \frac{2}{15v}$$

$$12. \frac{2x^2}{x^2 - 7x + 12} - \frac{x^2 + 9}{x^2 - 7x + 12}$$

11. _____

12. _____

$$13. \frac{5x}{3} - \frac{7x}{8}$$

$$14. \frac{n^2 + 11n + 10}{4n + 36} + \frac{2}{n + 9}$$

13. _____

14. _____

15. _____

16. _____

$$15. \frac{a}{a+2} - \frac{a+10}{a^2-4}$$

$$16. \frac{3}{x+1} + \frac{x}{x-1}$$

$$17. \frac{18m^2n^4}{27m^2n^5}$$

$$18. \frac{4y-36}{y-9}$$

$$19. \frac{a^2-13a+42}{a^2+a-56}$$

$$20. \frac{2k^2-k-1}{2k^2+k}$$

$$21. \frac{12b^3c^2}{5ac} \cdot \frac{15a^2b}{3b^2c}$$

$$22. \frac{2}{2x} \cdot \frac{10x^2+6x}{35x+21}$$

$$23. \frac{c^2-25}{4c-4} \cdot \frac{c-1}{c^2-3c-10}$$

$$24. \frac{5p^2-8p+3}{2p+14} \cdot \frac{p+7}{10p-6}$$

$$25. \frac{5}{3z} \div \frac{20}{7z^2}$$

$$26. \frac{60}{4g^2-36} \div \frac{12}{g^2+3g}$$