

Name: \_\_\_\_\_

Unit 8: Rational Functions



Date: \_\_\_\_\_ Bell: \_\_\_\_\_

Homework 1: Simplify, Multiply, & Divide  
Rational Expressions**\*\* This is a 2-page document! \*\*****Directions:** Simplify the expressions below.

1.  $\frac{16m^2}{24m^7}$

2.  $\frac{n^2 + 7n}{4n^2 + 28n}$

3.  $\frac{x^2 - 10x - 24}{x + 2}$

4.  $\frac{1 - 9w^2}{12w - 4}$

5.  $\frac{4a^2 - 36a}{2a^4 - 24a^3 + 54a^2}$

6.  $\frac{y^2 - 36}{5y^2 - 26y - 24}$

**Directions:** Find the product. Give your answer in simplest form.

7.  $\frac{32x^3y}{5xy^2} \cdot \frac{15y}{8x^2y^4}$

8.  $\frac{m^2 - 6m + 8}{2m - 2} \cdot \frac{10}{m - 4}$

9.  $\frac{28n + 40}{35n + 50} \cdot \frac{12n + 24}{8n + 16}$

10.  $\frac{p + 10}{9 - p} \cdot \frac{p^2 - 5p - 36}{4p^2 + 16p}$

$$11. \frac{v^2 - 49}{20v^3} \cdot \frac{4v^2 - 24v}{v^2 + v - 42}$$

$$12. \frac{2n - 3}{n + 1} \cdot \frac{2n^2 + 5n + 3}{9 - 4n^2}$$

$$13. \frac{12k^2 - 54k}{6k} \cdot \frac{6}{81 - 18k}$$

$$14. \frac{6c^2 + 13c - 63}{6c^2 - 17c + 7} \cdot \frac{2c^2 - 9c + 4}{12c + 54}$$

**Directions:** Find the quotient. Give your answer in simplest form.

$$15. \frac{14m^4}{3m} \div \frac{7m^2}{18m^5}$$

$$16. \frac{x^2 - 3x - 28}{6x} \div \frac{2x - 14}{2}$$

$$17. \frac{2a^2 + 14a}{8a^2} \div (10a + 70)$$

$$18. \frac{1 - h^2}{2h^2 - 10h - 12} \div \frac{2h - 2}{6}$$

$$19. \frac{2r + 2}{r + 2} \div \frac{4r^2 + 8r + 4}{12r + 12}$$

$$20. \frac{20x - 4}{8x^2} \div (5x - 1) \cdot \frac{6x}{5}$$

