

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

Period: \_\_\_\_\_

### 0.5 Simplifying, Multiplying and Dividing Rational Expressions

**Directions: Find the domain for each expression.**

1.  $d(y) = y + 3$

2.  $g(k) = 2k^2 + 4k - 6$

3.  $b(n) = \sqrt{2n - 8}$

4.  $m(t) = \sqrt{9 - 3t}$

5.  $u(x) = \frac{x - 5}{2x + 4}$

6.  $a(r) = r + \frac{1}{r - 1}$

7.  $q(w) = \frac{w + 4}{w^2 + 1}$

8.\*  $f(x) = \frac{x}{\sqrt{x + 3}}$

9.\*  $t(v) = \sqrt{v^2 + 2v - 8}$

**Directions: Simplify and find the domain of each expression.**

10.  $\frac{18x^6}{27x^4}$

11.  $\frac{3x^2}{12x}$

12.  $\frac{10a^3b}{-15ab^3}$

13.  $\frac{3x + 18}{x^2 + 6x}$

14.  $\frac{3x - 12}{3x^2 - 12x}$

15.  $\frac{x^2 - 5x + 6}{x^2 + 2x - 15}$

16. 
$$\frac{4x+4}{x^2+4x+3}$$

17. 
$$\frac{x^2-x-12}{x^2-2x-8}$$

18. 
$$\frac{x^2-5x+4}{x^2-4x}$$

19. 
$$\frac{x^2-16}{9-x} \cdot \frac{x^2+x-90}{x^2+14x+40}$$

20. 
$$\frac{10x^2-20x}{40x^3-80x^2} \cdot \frac{16x^3+80x^2}{6x+30}$$

21. 
$$\frac{4n^3-14n^2}{14n^3-8n^2} \div \frac{8n-28}{28-49n}$$

22. 
$$\frac{14b+10}{7b+5} \div \frac{3b^2+13b-56}{48-18b}$$

23. Find the domain of the expression.

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

24. Find the domain of the expression.

$$\frac{4+x}{\sqrt{4+x}}$$

25. Simplify and find the domain.

$$\frac{3x^4-48}{3x^2+12x+12}$$

26. Simplify and find the domain.

$$\frac{2x^2+6x^3+5x^7+15x^8}{3x^2+8x+7}$$