

# 11-1 Practice B

## Simplifying Rational Expressions

Form K

Simplify each expression. State any excluded values.

1.  $\frac{3n-15}{12}$

2.  $\frac{12t^8}{36t^6}$

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

4.  $\frac{15a-50}{10a+35}$

5.  $\frac{q^2-16}{7q^2+28q}$

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

7.  $\frac{m^3+9m}{6m^2-3m}$

8.  $\frac{9z^2-36}{12z+24}$

9. The length of a rectangle is  $8n + 24$  and the width is  $12n + 28$ . What is the ratio of its length to its width? Simplify your answer.
10. The area of a rectangle is  $x^2 + 6x - 16$ . Its width is  $x - 2$ . What is a simplified expression for its length?
11. **Writing** Describe how you determine what values should be excluded when simplifying a rational expression. Explain why this must be done.
12. Are the given factors opposites? Explain.
- a.  $5x - 2$ ;  $2 - 5x$
- b.  $-t + 10$ ;  $t + 10$
- c.  $102 + 11d$ ;  $-102 - 11d$

13. A mother is packing away winter clothes into two rectangular tubs. Both hold the same volume of clothes. The first tub has a length of  $2b + 5$ , a width of  $b - 3$ , and a height of  $4b$ . The second tub has a width of  $4b^2 + 10b$  and a length of  $b - 3$ . What is a simplified expression for the height of the second tub? Show your work.

**Simplify each expression.**

14.  $\frac{x^2 - 121}{3x^2 - 9x}$

15.  $\frac{v^3 w^3}{v^2 w^3}$

16.  $\frac{5x^2 - 41x + 42}{x^2 - 49}$

17.  $\frac{2t^4 + t^3 - 28t^2}{t^2 + 4t}$

18.  $\frac{9m^2 - 32m - 65}{m^2 - 25}$

19.  $\frac{8a^2 - 12a - 36}{a^2 - 9}$

20. **Writing** Is  $\frac{x^2 - 81}{x - 9}$  the same as  $x + 9$ ? Explain.

21. **Reasoning** Is  $y = 4$  an acceptable value for the expression  $\frac{3y^2 - 10y - 8}{y^2 - 16}$ ? Explain.