

11-1 Practice

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. $102 + 11d$; $-102 - 11d$

11-1 Practice (continued)

Form K

Simplifying Rational Expressions

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. State any excluded values.

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.