

11-1

Practice

Form G

Simplifying Rational Expressions

Simplify each expression. State any excluded values.

1. $\frac{6p - 36}{18}$

2. $\frac{q + 1}{q + 4q + 3}$

3. $\frac{8b^5}{64b^4}$

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

5. $\frac{56c - 14}{24c - 6}$

6. $\frac{3b - 6}{b^2 - 4}$

7. $\frac{x^2 - 144}{3x^2 - 36x}$

8. $\frac{n^2 - n - 12}{n^2 - 4n}$

9. $\frac{3x^2 + 19x - 14}{x^2 - 49}$

10. $\frac{7d^3 + 14d}{6d^2 - 2d}$

11. $\frac{25y^2 - 121}{15y - 33}$

12. $\frac{99q^2 - 2q - 1}{9q - 1}$

13. The length of a rectangle is $3h + 2$ and the width is $9h + 6$. What is the ratio of its length to its width? Simplify your answer.
14. The length of a rectangle is $x - 2$. Its area is $2x - 4$. What is a simplified expression for the width?
15. The area of a rectangle is $x^2 - 9$. Its width is $x - 3$. What is a simplified expression for the length?
16. **Writing** Why must the denominator of a rational expression not be equal to 0?
17. The area of a rectangle is $16a^2$. The length is $2a$. What is a simplified expression for the width?
18. Are the given factors opposites? Explain.
- $3d - 7$; $7 - 3d$
 - $-y + 4$; $y + 4$
 - $27 + 8x$; $-27 - 8x$
19. The ratio of the area of a small circle to a larger circle is $\frac{\pi(2x)^2}{\pi(6x)^2}$. Simplify the expression.