

GUIDED PRACTICE

1. **Vocabulary** What is true about both the numerator and denominator of rational expressions?

SEE EXAMPLE 1 Find any excluded values of each rational expression.

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2. $\frac{5}{m}$

3. $\frac{x+2}{x^2-8x}$

4. $\frac{p^2}{p^2-2p-15}$

SEE EXAMPLE 2 Simplify each rational expression, if possible. Identify any excluded values.

p. 887

5. $\frac{4a^2}{8a}$

6. $\frac{2d^2+12d}{d+6}$

7. $\frac{2}{y+3}$

8. $\frac{10}{5-y}$

9. $\frac{2h}{2h+4}$

10. $\frac{3(x+4)}{6x}$

Simplify each rational expression, if possible.

SEE EXAMPLE 3

p. 887

11. $\frac{b+4}{b^2+5b+4}$

12. $\frac{s^2-4}{s^2+4s+4}$

13. $\frac{c^2+5c+6}{(c+3)(c-4)}$

14. $\frac{(x-2)(x+1)}{x^2+4x+3}$

15. $\frac{j^2-25}{j^2+2j-15}$

16. $\frac{p+1}{p^2-4p-5}$

SEE EXAMPLE 4

p. 888

17. $\frac{2n-16}{64-n^2}$

18. $\frac{8-4x}{2x^2-12x+16}$

19. $\frac{10-5r}{r^2-4r-12}$

20. $\frac{2x-14}{49-x^2}$

21. $\frac{5q-50}{100-q^2}$

22. $\frac{36-12a}{a^2+2a-15}$

SEE EXAMPLE 5

p. 889

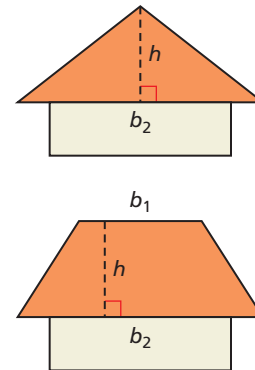
23. **Construction** The side of a triangular roof will have the same height h and base b_2 as the side of a trapezoidal roof.

- a. What is the ratio of the area of the triangular roof to the area of the trapezoidal roof?

(Hint: For a triangle, $A = \frac{1}{2}b_2h$.

For a trapezoid, $A = \frac{b_1+b_2}{2}h$.)

- b. Compare the ratio from part a to what the ratio will be if b_1 is doubled for the trapezoidal roof and b_2 is doubled for both roofs.



PRACTICE AND PROBLEM SOLVING

Find any excluded values of each rational expression.

24. $\frac{c}{c^2+c}$

25. $\frac{2}{-3x}$

26. $\frac{4}{x^2-3x-10}$

27. $\frac{n^2-1}{2n^2-7n-4}$

Simplify each rational expression, if possible. Identify any excluded values.

28. $\frac{4d^3+4d^2}{d+1}$

29. $\frac{3m^2}{m-4}$

30. $\frac{10y^4}{2y}$

31. $\frac{2t^2}{16t}$