LESSON 8.4

NAME _____ DATE _____

Practice A

For use with pages 462–468

Use the quotient of powers property to simplify the expression.

1. $\frac{4^2}{4}$
2. $\frac{5^3}{5^5}$
3. $\frac{x^7}{x^3}$
4. $\frac{a^{10}}{a^5}$
5. $\frac{8^3}{8^5}$
6. $\frac{c^4}{c^6}$
7. $\frac{(-2)^3}{(-2)}$
8. $\frac{-(m^4)}{m^4}$

Use the power of a quotient property to simplify the expression.

9. $\left(\frac{1}{2}\right)^4$
10. $\left(\frac{2}{3}\right)^3$
11. $\left(\frac{4}{x}\right)^2$
12. $\left(\frac{3}{4}\right)^2$
13. $\left(\frac{3}{m}\right)^3$
14. $\left(\frac{x^2}{5}\right)^2$
15. $\left(\frac{3}{4}\right)^{-3}$
16. $\left(\frac{a^3}{b^2}\right)^4$

Simplify the quotient.

17. $\frac{7^5}{7^3}$
18. $\frac{6^5}{6^7}$
19. $\frac{18^6}{18^6}$
20. $\frac{(-5)^9}{5^9}$
21. $\frac{2^3}{2^{-4}}$
22. $\frac{4^5 \cdot 4^3}{4^6}$
23. $\left(\frac{2}{3}\right)^3$
24. $\left(\frac{3}{2}\right)^{-1}$

Simplify the expression. Use only positive exponents.

25. $\left(\frac{x}{3}\right)^4$
26. $\frac{x^7}{x^2}$
27. $\left(\frac{2}{x}\right)^6$
28. $x^5 \cdot \frac{1}{x^8}$
29. $x^{12} \cdot \frac{1}{x^3}$
30. $\left(\frac{x^5}{x^3}\right)^{-1}$
31. $\left(\frac{y^3}{y^5}\right)^{-2}$
32. $\frac{m^4 \cdot m^2}{m^7}$
33. $\frac{(t^3)^2}{(t^2)^3}$
34. $\frac{(2z)^4}{3z^2}$
35. $\frac{(2a^2b)^3}{(2ab^3)^2}$
36. $\left(\frac{3m^2n^4}{2mn^3}\right)^3$

Grade Point Average **In Exercises 37 and 38, use the following information.**

From Carmen's freshman year to her senior year, her grade point average (GPA) increased by approximately the same percentage each year. Carmen's GPA in year t can be modeled by

$\text{GPA} = 2\left(\frac{6}{5}\right)^t$, where $t = 0$ corresponds to her freshman year.

37. Complete the table showing Carmen's GPA throughout her high school career.

Year, t	0	1	2	3
GPA				

38. Find the ratio of Carmen's GPA in her senior year to her GPA in her sophomore year.

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