

Page 498 #4-44 Evens, & 51

SIMPLIFYING EXPRESSIONS Simplify the expression. Write your answer using exponents.

4. $\frac{2^{11}}{2^6}$

6. $\frac{(-6)^8}{(-6)^5}$

8. $\frac{(-12)^9}{(-12)^3}$

10. $\frac{6^7 \cdot 6^4}{6^6}$

12. $\left(\frac{3}{2}\right)^4$

14. $\left(-\frac{2}{5}\right)^5$

16. $\frac{1}{9^5} \cdot 9^{11}$

18. $4^9 \cdot \left(-\frac{1}{4}\right)^5$

20. **ERROR ANALYSIS** Describe and correct the error in simplifying $\frac{9^5 \cdot 9^3}{9^4}$.

$$\frac{9^5 \cdot 9^3}{9^4} = \frac{9^8}{9^4} = 9^{12} \quad \times$$

SIMPLIFYING EXPRESSIONS Simplify the expression.

22. $z^8 \cdot \frac{1}{z^7}$

24. $\left(\frac{j}{k}\right)^{11}$

26. $\left(-\frac{1}{x}\right)^5$

28. $\left(-\frac{a}{b}\right)^4$

30. $\left(\frac{a^7}{2b}\right)^5$

32. $\left(\frac{3x^5}{7y^2}\right)^3$

34. $\left(\frac{2x^3}{y}\right)^3 \cdot \frac{1}{6x^3}$

36. $\left(-\frac{5}{x}\right)^2 \cdot \left(\frac{2x^4}{y^3}\right)^2$

SIMPLIFYING EXPRESSIONS Find the missing exponent.

$$38. \frac{(-8)^7}{(-8)^2} = (-8)^3$$

$$40. \frac{1}{p^5} \cdot p^? = p^9$$

SIMPLIFYING EXPRESSIONS Simplify the expression.

$$42. \left(\frac{2f^2g^3}{3fg} \right)^4$$

$$44. \left(\frac{2m^5n}{4m^2} \right)^2 \cdot \left(\frac{mn^4}{5n} \right)^2$$

51. **SPACE TRAVEL** Alpha Centauri is the closest star system to Earth. Alpha Centauri is about 10^{13} kilometers away from Earth. A spacecraft leaves Earth and travels at an average speed of 10^4 meters per second. About how many years would it take the spacecraft to reach Alpha Centauri?