

Quiz for Lessons 7-1 Through 7-4

7-1 Integer Exponents

Evaluate each expression for the given value(s) of the variable(s).

1. t^{-6} for $t = 2$
2. n^{-3} for $n = -5$
3. $x^{-3}y$ for $x = 4$ and $y = -2$
4. p^0 for $p = 9$
5. $(5 - d)^{-7}$ for $d = 6$
6. r^0s^{-2} for $r = 8$ and $s = 10$

Simplify.

7. $5k^{-3}$
8. $\frac{x^4}{y^{-6}}$
9. $8f^{-4}g^0$
10. $\frac{a^{-3}}{b^{-2}}$

11. **Measurement** Metric units can be written in terms of a base unit. The table shows some of these equivalencies. Simplify each expression.

Selected Metric Prefixes					
Milli-	Centi-	Deci-	Deka-	Hecto-	Kilo-
10^{-3}	10^{-2}	10^{-1}	10^1	10^2	10^3

7-2 Powers of 10 and Scientific Notation

12. Find the value of 10^4 .
13. Write 0.0000001 as a power of 10.
14. Write 100,000,000,000 as a power of 10.
15. Find the value of 82.1×10^4 .
16. **Measurement** The lead in a mechanical pencil has a diameter of 0.5 mm. Write this number in scientific notation.

7-3 Multiplication Properties of Exponents

Simplify.

17. $2^2 \cdot 2^5$
18. $3^5 \cdot 3^{-3}$
19. $p^4 \cdot p^5$
20. $a^3 \cdot a^{-6} \cdot a^{-2}$

21. **Biology** A swarm of locusts was estimated to contain 2.8×10^{10} individual insects. If each locust weighs about 2.5 grams, how much did this entire swarm weigh? Write your answer in scientific notation and in standard form.

Simplify.

22. $(3x^4)^3$
23. $(m^3n^2)^5$
24. $(-4d^7)^2$
25. $(cd^6)^3 \cdot (c^5d^2)^2$

7-4 Division Properties of Exponents

Simplify.

26. $\frac{6^9}{6^7}$
27. $\frac{12a^5}{3a^2}$
28. $\frac{x^4y^8}{x^6y^6}$
29. $\frac{5m^2n^4}{m^2n}$
30. $\left(\frac{3}{5}\right)^3$
31. $\left(\frac{4p^3}{2pq^4}\right)^2$
32. $\left(\frac{5}{6}\right)^{-2}$
33. $\left(\frac{x^3y^4}{xy^5}\right)^{-3}$

Simplify each quotient and write the answer in scientific notation.

34. $(8 \times 10^9) \div (2 \times 10^6)$
35. $(3.5 \times 10^5) \div (7 \times 10^8)$
36. $(1 \times 10^4) \div (4 \times 10^4)$