

Quiz for Lessons 7-1 Through 7-5

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. r^0s^{-2} for $r = 8$ and $s = 10$

Simplify.

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

8. **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

9. Find the value of 10^4 . 10. Write 0.0000001 as a power of 10.
 11. Write 100,000,000,000 as a power of 10. 12. Find the value of 82.1×10^4 .
 13. **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.

14. $2^2 \cdot 2^5$ 15. $3^5 \cdot 3^{-3}$ 16. $p^4 \cdot p^5$ 17. $a^3 \cdot a^{-6} \cdot a^{-2}$
 18. **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.

Simplify.

19. $(3x^4)^3$ 20. $(m^3n^2)^5$ 21. $(-4d^7)^2$ 22. $(cd^6)^3 \cdot (c^5d^2)^2$

7-4 Division Properties of Exponents

Simplify.

23. $\frac{6^9}{6^7}$ 24. $\frac{12a^5}{3a^2}$ 25. $\left(\frac{3}{5}\right)^3$ 26. $\left(\frac{4p^3}{2pq^4}\right)^2$

Simplify each quotient and write the answer in scientific notation.

27. $(8 \times 10^9) \div (2 \times 10^6)$ 28. $(3.5 \times 10^5) \div (7 \times 10^8)$ 29. $(1 \times 10^4) \div (4 \times 10^4)$

7-5 Fractional Exponents

Simplify each expression. All variables represent nonnegative numbers.

30. $81^{\frac{1}{2}}$ 31. $125^{\frac{1}{3}}$ 32. $4^{\frac{3}{2}}$ 33. $0^{\frac{2}{9}}$
 34. $\sqrt{x^8y^4}$ 35. $\sqrt[3]{r^9}$ 36. $\sqrt[6]{z^{12}}$ 37. $\sqrt[3]{p^3q^{12}}$