

LESSON

11-1

Radical Expressions and Rational Exponents*Practice and Problem Solving: A/B*

Write each expression in radical form. Simplify numerical expressions when possible.

1. $64^{\frac{5}{6}}$

2. $(6x)^{\frac{3}{2}}$

3. $(-8)^{\frac{4}{3}}$

4. $(5r^3)^{\frac{1}{4}}$

5. $27^{\frac{2}{3}}$

6. $(100a)^{\frac{1}{2}}$

7. $10^{\frac{8}{5}}$

8. $(x^2)^{\frac{2}{5}}$

9. $(7x)^{-\frac{1}{3}}$

Write each expression by using rational exponents. Simplify numerical expressions when possible.

10. $(\sqrt[4]{2})^7$

11. $(\sqrt{5x})^3$

12. $\sqrt[5]{54^4}$

13. $(\sqrt{169})^3$

14. $(\sqrt[4]{2v})^3$

15. $(\sqrt[5]{n^2})^2$

16. $\frac{1}{(\sqrt{3m})^3}$

17. $\sqrt[7]{36^{14}}$

18. $\frac{1}{(\sqrt[4]{5p})^7}$

Solve.

19. In every atom, electrons orbit the nucleus with a certain characteristic

velocity known as the Fermi-Thomas velocity, equal to $\frac{Z^{\frac{2}{3}}}{137}c$, where Z

is the number of protons in the nucleus and c is the speed of light. In terms of c , what is the characteristic Fermi-Thomas velocity of the electrons in Uranium, for which $Z = 92$?
