MTH 28.5 LECTURE NOTES (Ojakian)
Topic 14: Exponents and Scientific Notation

OUTLINE
References: 5.2

1. <u>Exponent Rules</u>

   (a) Exponents

      i. $A^0 = 1$
      ii. $A^{-n} = \dfrac{1}{A^n}$
      iii. $A^n \cdot A^m = A^{n+m}$
      iv. $\dfrac{A^n}{A^m} = A^{n-m}$
      v. $(A \cdot B)^n = A^n B^n$
      vi. $\left(\dfrac{A}{B}\right)^n = \dfrac{A^n}{B^n}$
      vii. For $A \geq 0$: $(A^n)^m = A^{nm}$

   (b) Simplify Various Expressions with exponents.

2. <u>More Problems</u>

   PROBLEM 1. *Simplify the following:*

   (a) $(a^{-2})^3$
   (b) $\dfrac{x^2 y^{-3}}{s^{-4}}$
   (c) $(4x^2 y^{-3} z^2)^2$

3. <u>Scientific Notation</u>

   (a) Some big numbers:

      i. Distance (average) from earth to sun is 93 million miles (called 1 Astronomical Unit)

   (b) Some small numbers:

      i. Atom Diameter: 0.1 to 0.5 nano meter