MATH 1010 ~ Intermediate Algebra

Chapter 5: POLYNOMIALS AND FACTORING

Section 5.1: Integer Exponents and Scientific Notation

Objectives:

- Use the rules of exponents to simplify expressions.
- Rewrite exponential expressions involving negative exponents.
- Write very large and very small numbers in scientific notation.

? 4^{-2} $\left(\frac{3}{4}\right)^{-1}$? ??

? -3^{-4} ?

Review of the rules of exponents

1) $a^m a^n =$

2) $a^m \div a^n =$

3) $(a^m)^n =$

4) $(ab)^m =$

5) $(a/b)^m =$

6) $a^0 =$

7) $a^{-m} =$

8) $(a/b)^{-m} = (b/a)^m$

Use the rules to simplify these:

a) $3^2\, x^2 \cdot x^3 =$

b) $(3x)^2 \cdot x^5 =$

c) $-(a^3\, b^2\,)^2\, (-ab^3) =$

d) $\dfrac{3x^2\,(2x)^2}{(\,-2x)\,(6x)} =$

e) $\dfrac{-1}{6^{-2}} =$

f) $(-4^{-1}\,)^{-2} =$

g) $(4^0 - 3^{-2}\,)^{-1} =$

h) $(32 + 4^{-3})^0$ =

i) $\left(\frac{5^2 x^3 y^{-3}}{125\ xy}\right)^{-1}$ =

j) $[(2x^{-3}y^{-2})^2\ ]^{-2}$ =

k) $\frac{u^{-1} - v^{-1}}{u^{-1} + v^{-1}}$ =

Scientific Notation

Put into scientific notation:

a) .000000000328

b) 1,248,000,000

Put in standard notation:

a) 3.1×10^8

b) 2.3×10^{-5}