

Mini-Review Sheet - Unit 3: Expressions and Polynomials

A. Dimensional Analysis - Convert the following into an equivalent measurement

- a) f feet to yards b) y years to days c) h hours to years
d) Jules Verne is the author of a book called *Twenty Thousand Leagues Under the Sea*.

Use the conversion factors listed below, and the ones you know, to convert 20,000 leagues into feet.

$$1 \text{ fathom} = 2 \text{ yards}$$

$$1 \text{ statute mile} = 5280 \text{ feet}$$

$$1 \text{ nautical mile} = 6080 \text{ feet}$$

$$1 \text{ league} = 3 \text{ nautical miles}$$

B. Operations with Polynomials. For each example below, simplify the expression and write it in standard form. Name the degree and leading coefficient of each.

a) $-5x(2x + 7) - (3x^4 - 5x^2 + 7) + (8x - 2 + 4x^2)$

b) $2(9x - 3)^2$

c) $(6x^2 - 4x + 2)(5x^3 + 8)$

d) $\frac{6x^4 - 12x^3 + 8x - 2}{2}$

C. Writing Expressions - For questions (a) and (b): Represent the cost of:

- a) A day at the amusement park with a \$12 admission fee and rides that are \$4 each
b) A taxi ride where m is the total number of minutes and \$3.60 is what is spent on the first 4 minutes of the ride with \$.75 charged for each additional minute

For questions (c), (d) and (e): Write the expression in simplest form

- c) The perimeter of a rectangle whose width is 5 more than twice its length
d) The volume of a rectangular prism whose height and length are the same and are two less than three times the width
e) A shirt that costs x dollars is discounted 30% and then an 8% tax is added.