Primer on Solving Quantitative Style Word Problems in Physical Science and Geology

Compile by Dr. Taylor, Jan. 23, 2011

(1) Carefully read the word problem
(2) Identify all the variables
    a. ID Knowns
    b. ID Unknowns
(3) Draw and sketch the problem, labeling all the variables with magnitudes and units
(4) Convert all units to consistent dimensions; use unit algebra techniques, cancel units
(5) List all equations that apply to the problem, refer to class notes and text book
(6) Rearrange equations, substitute variables, algebraically solve for the unknown(s)
(7) Check your work, review your math, review your unit algebra, does the value of your answer make logical sense? For example, if you calculate the volume of the Earth as 6 gallons, something is not right, and you need to go back to the drawing board.

Example Problem 1.2 Assume you are dealing with a vertical-walled reservoir having a surface area of 500,000 m^2 and that an inflow of 1.0 m^3/sec occurs. How many hours will it take to raise the reservoir level by 30 cm?

Stepwise solution to problem 1.2