

Dimensional Analysis Problems

- A 500 sheet stack of paper is 1.45 inches thick.
 - How many sheets are in a stack of paper two and one-half inches thick?
 - Calculate the thickness of a sheet of paper folded in half seven times. (= 128 sheets)
- A certain bug can run 36.0 inches in 1.32 seconds. 5280 ft = 1 mile
 - How long would it take the bug to run 1.00 mile at this rate?
 - What is the bug's speed in miles per hour?
- A U.S. quarter has a mass of 5.67 g and is approximately 1.55 mm thick.
453.6 g = 1 lb and 25.4 mm = 1 inch
 - How many quarters would there be in a stack as high as the Washington Monument which is 575 feet high?
 - What would be the weight in pounds of \$1000.00 worth of quarters?
- From a certain medicine 20 drops give 1.00 mL. 237. mL = 1 cup and 1 cup = 16 tablespoons.
1 gallon = 16 cups.
 - Calculate the number of drops required to exactly fill one tablespoon.
 - At the rate of 8 drops every 5.0 seconds how many days would it take to drain a 1,000,000 gallon reservoir?
- 1.00 mL of mercury has mass 13.6 grams. 1 ton = 2000 lb
 - Calculate the weight in pounds of 6.0 tablespoons of mercury.
 - How many gallons of mercury weigh 1.00 ton?

Answers:

- 2.50 in = 862 sheets
 - 128 sheets = 0.371 in
- 1.00 mi = 38.7 min
 - 1.00 hr = 1.55 mi so 1.55 mph
- 575 ft = 113071 Q = 1.13×10^5 Q
 - \$1000. = 50.0 lb
- 1.00 Tbsp = 296. drops
 - 1.0×10^6 gal = 5.5×10^5 days
- 6.00 Tbsp = 2.66 lb
 - 1.00 ton = 17.6 gal