DIMENSIONAL ANALYSIS PROBLEMS

Conversions Factors

1 hr = 60 min	1 min = 60 sec	1 ton = 2000 lbs	7 days = 1 week
24 hrs = 1 day	1 kg = 2.2 lbs	1 gal = 3.79 L	264.2 gal = 1 cubic meter
1 mi = 5,280 ft	1 kg = 1000 g	1 lb = 16 oz	20 drops = 1 mL
365 days = 1 yr	52 weeks = 1 yr	2.54 cm = 1 in	1 L = 1000 mL
0.621 mi = 1.00 km	1 yd = 36 inches	1 cc is 1 cm^3	1 mL = 1 cm^3

DIRECTIONS: Solve each problem using dimensional analysis. Every number must have a unit. Work must be shown. Conversion factors are given below

1.) How many miles will a person run during a 10 kilometer race?

2.) The moon is 250,000 miles away. How many feet is it from earth?

3.) A family pool holds 10,000 gallons of water. How many cubic meters is this?

4.) The average American student is in class 330 minutes/day. How many hours/day is this?

How many seconds is this?

5) How many seconds are there in 1 year?

6) Lake Michigan holds 1.3 x 10^{15} gallons of water. How many liters is this?

7) Pepsi puts 355 ml of pop in a can. How many drops is this?

How many cubic meters is this?

8) Chicago uses 1.2×10^9 gallons of water /day. How many gallons per second must be pumped from the lake every second to supply the city?

9) Sixty miles/ hour is how many ft/sec?

10) Lake Michigan holds 1.3×10^{15} gallons of water. If just Chicago removed water from the lake and it never rained again, how many days would the water last? Chicago uses 1.2×10^9 gallons of water /day

11). How many minutes are in 180.0 days?

12). If a person weighs 125 lbs, 8 oz., how many mg does s/he weigh?

13). The distance from Santa Maria to Los Alamos is 16.25 mi. What is the distance in cm?

14). Santa Maria has an elevation of 6.30×10^5 mm. How many km is this elevation?

15). If a projectile travels 3.00×10^3 feet in one second, how far will it travel in 18 minutes?

16). A small herd of cattle consumes fourteen bales of hay in two weeks. How many bales will this herd consume in a year?

17). During the previous year, Zach's weather station measured 0.8 yards of rain. Express this amount in cm.

18). If a swimmer swims 85.4 yards in five minutes, how many meters will s/he swim in 70.0 seconds?

19). Saffron costs $368.00 per ounce. Determine how many grams you can purchase for $15.00.

20). How many grams are equivalent to 1.80×10^{-4} tons? (English tons)

21). A gas station is charging $1.299 per gallon of gas. What would be the price for a liter of gas?

22). Determine the number of years in 8.35×10^6 minutes.

23). A quart of a liquid has a mass of 2.70 kilograms. How many quarts will take to weigh 100.0 pounds?

24). Sixty-two months is equivalent to how many seconds?

25). A car consumes 25.00 gallons of fuel when driving a distance of 400.0 km. How many gallons will it consume when driving 250.0 miles?

26). 0.0054 weeks is equivalent to how many minutes?

27). How many feet per second is a wave going if it travels a distance of one mile in 7.35 seconds?