# DIMENSIONAL ANALYSIS PROBLEMS

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| Conversions Factors  |

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| 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 cm3 | 1 mL = 1 cm3 |

**DIRECTIONS**: Solve each problem using dimensional analysis. Every number must have a unit.

***Work must be shown.***

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. How many seconds are there in 1 year?
5. Lake Michigan holds 1.3 x 1015 gallons of water. How many liters is this?
6. Pepsi puts 355 ml of cola in a can.
\* How many drops is this?
\* How many cubic meters is this?
7. Sixty miles/ hour is how many ft/sec?
8. How many minutes are in 180.0 days?
9. If a person weighs 125 lbs, 8 oz., how many mg does s/he weigh?
10. Santa Maria has an elevation of 6.30 x 105 mm. How many km is this elevation?
11. If a projectile travels 3.00 x 103 feet in one second, how far will it travel in 18 minutes?
12. If a swimmer swims 85.4 yards in five minutes, how many meters will s/he swim in 70.0 seconds?
13. How many grams are equivalent to 1.80 x 10-4 tons?
14. A gas station is charging $3.299 per gallon of gas. What would be the price for a liter of gas?
15. Determine the number of years in 8.35 x 106 minutes.
16. A quart of a liquid has a mass of 2.70 kilograms. How many quarts will take to weigh 100.0 pounds?
17. Sixty-two months is equivalent to how many seconds?
18. 0.0054 weeks is equivalent to how many minutes?
19. How many feet per second is a wave going if it travels a distance of one mile in 7.35 seconds?