MTH1W

Dimensional Analysis (Advanced: Not Tested)

Conversions:

1 foot = 12 inches	1000 mm = 1 m	60 sec = 1 min
3 ft = 1 yard	100 cm = 1 m	60 min = 1 hr
5280 ft = 1 mile	10 mm = 1 cm	24 hr = 1 day
1 inch = 2.54 cm	1 km = 1000 m	365 days = 1 yr
	1 km = 0.62 miles	100 yr = 1 century

Using the above conversion factors, make the following conversions.

9. Convert 190 mm/min into miles/year

10. Convert 40 mm^2/s into ft^2/min

11. Convert 80 cm^3/min in m^3/day

12. Tectonic plates move approximately 1.5 cm/year.
What is this rate in ft/century?

13. Tectonic plates move approximately 1.5 cm/year.
Convert this to nm/s.

1 m = $1 \times 10^9\ nm$

Questions 14 to 16 are about ways of measuring PRESSURE:

1 atm = 760 mmHg
1 atm = 760 torr
1 atm = 101325 Pa

1 atm = 101.325 kPa
1 atm = 1.01325 bar
1 atm = 14.7 psi

"1 atm" is approximately the pressure of the air above you, pushing down on you.

14. Convert 732 mmHg to kPa.

$$732\ mmHg\ \times\ \frac{101.325\ kPa}{760\ mmHg}\ =$$

15. Convert 104.9 kPa into psi.

16. What is the pressure in Pa ('pascals') if the pressure is equal to 380 torr?

17. If the atmospheric pressure is changing at -0.4 kPa/hr,
What is this change in torr/min ?

18. 1 mL is the common way to saying 1 cm^3
1 L is the common way of saying 1 dm^3

10 cm = 1 dm

How many cm^3 are in 1 dm^3 ?

19. One **hectare** is a square of land 100 m long and 100 m wide.

a) What is the area of one hectare in m^2 ?

b) What is the area of one hectare in ft^2?