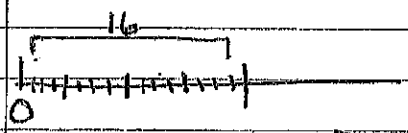
CH1 math 10 - notes

Imperial Measurement



there are 16 ticks between each inch.
So one tick $= \frac{1}{16}$

To know

1 foot = 12 inches
1 yard = 3 feet or 36 inches
1 mile = 1760 yards ; 5280 feet or 63360 inches

$\xrightarrow{\times}$ ex 2 ft = 2 × 12 = 24 inches

$\xleftarrow{\div}$ ex 315 ft = 315 ÷ 3 = 105 yards

To convert from feet and inches to inches

① multiply feet by 12
② add to inches

ex 3 ft 6 inches
① 3 × 12 = 36
② 36 + 6 = 42 inches

To convert feet in decimal to feet and inches

① multiply decimal by 12
② write in feet and (now) inches

ex 6.3 feet ⇒ ① .3 × 12 = 3.6 inches
~ 4 inches

② 6 ft 4 inches

Multiple Conversions

7yds 2ft 4inches → inches

* Convert 1 at a time then add

7yd = 7x3 = 21 feet = 21x12 = 252 inches
2ft = 2x12 = 24 inches

Add = 252 + 24 + 4 = 280 inches.

Go the other way

452 inches into feet + yards + inches

① 452 ÷ 12 (to find out how many feet) $37.\overline{6}$

37 whole feet

to find out what is left in inches 37x12 = 444 inches

∴ 452 − 444 = 8 inches

② 444 ÷ 3 (to find out how many yards) → 148 full yards (no decimal so no feet left over)

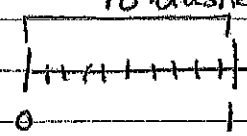
∴ 148 yards and 8 inches.

Math 10 - notes

Metric - all based around the metre
- all in multiples of 10

m = 1000 c = 100 h = 100
K = 1000 d = 10

10 dashes - 1 dash $= \frac{1}{10}$



* see chart on page 42

Quick facts

1 cm = 10 mm
1 m = 100 cm or 1000 mm
1 km = 1000 m

$\xrightarrow{\times}$ ex. 15 cm = 15 × 10 = 150 mm

$\xleftarrow{\div}$ ex 3000 m = 3000 ÷ 1000 = 3 km

exponents review:

10^1 = (1 zero) = 10
10^2 = (2 zeros) = 100
10^3 = (3 zeros) = 1000

$\frac{1}{10}$ = (back 1 place) = 0.1

$\frac{1}{100}$ or $\frac{1}{10^2}$ = (back 2 places) = 0.01

$\frac{1}{1000}$ or $\frac{1}{10^3}$ = (back 3 places) 0.001

Math 10 - notes

Conversion between systems

→ use the chart at the front or back of your book

have $\xrightarrow[\text{number given}]{\text{multiply by}}$ want

want $\xleftarrow[\text{number given}]{\text{divide by}}$ have

ex 8 inches → cm

1 inch = 2.54 cm

$\xrightarrow{\text{multiply}}$

$8 \times 2.54 = 20.32$ cm

Extra steps: If a direct route to what you want is not there convert to what you have and then convert again

ex 4 yd → cm

① 1 yd = 0.91 m

② 1 m = 100 cm

$4 \times 0.91 = 3.64$ m

$3.64 \times 100 = 364$ cm

Unit Conversion

	Common Imperial	Imperial and SI	SI
Length	1 mile = 1760 yards 1 mile = 5280 feet 1 yard = 3 feet 1 yard = 36 inches 1 foot = 12 inches	1 mile ≈ 1.609 km 1 yard = 0.9144 m 1 foot = 30.48 cm 1 inch = 2.54 cm	1 km = 1000 m 1 m = 100 cm 1 cm = 10 mm
Mass (Weight)	1 ton = 2000 pounds 1 pound = 16 ounces	2.2 pounds ≈ 1 kg 1 pound ≈ 454 g 1 ounce ≈ 28.35 g	1 t = 1000 kg 1 kg = 1000 g
Common Abbreviations	mile = mi yard = yd feet = ' or ft inch = " or in ton = tn pound = lb ounce = oz		kilometre = km metre = m centimetre = cm millimetre = mm tonne (metric ton) = t gram = g

Formulae

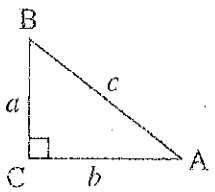
(Put your calculator in Degree Mode)

- Right triangles

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{opposite}}{\text{adjacent}}$$



Pythagorean Theorem

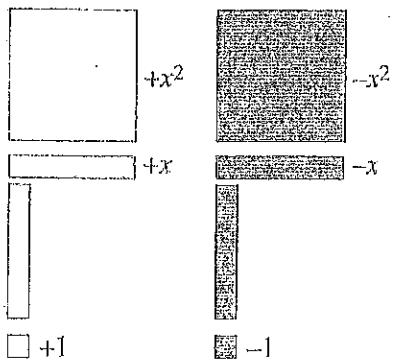
$$a^2 + b^2 = c^2$$

distance = speed × time

- The equation of a line:

$$y = mx + b$$
$$Ax + By + C = 0$$
$$y - y_1 = m(x - x_1)$$

- The slope of a line:

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Math Tiles Legend