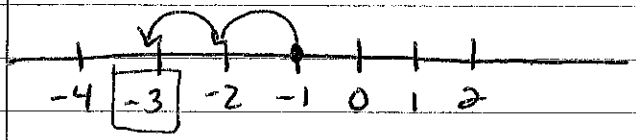
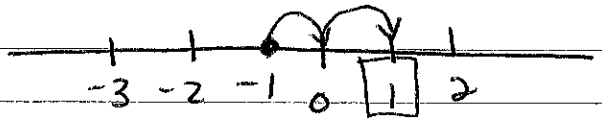
5.1 Math 10 AW - notes.

Review Integers

$-1 - 2 = -3$



$-1 + 2 = +1$



Also $-1 - (-2) \quad * \; - - = +$

$\hookrightarrow -1 + 2) = 1$

Multiplying & dividing rules

$(-) \times (-) = (+) \qquad (-) \times (+) = (-) \qquad (+) \times (-) = (-)$

$(-) \div (-) = (+) \qquad (-) \div (+) = (-) \qquad (+) \div (-) = (-)$

US

1 c = 8 oz
1 oz = 2 Tbsp
1 pt = 2 c or 16 oz
1 qt = 2 pt or 4 c or 32 oz
1 gal = 4 qt or 8 c or 64 oz

1 bushel = 8 gal

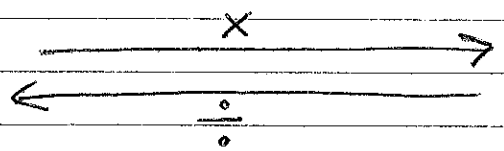
UK

1 c = 10 oz
1 oz = 2 Tbsp
1 pt = 2 c or 20 oz

5.2 Math 10 AW – notes

Capasity – Metric

1 kL = 1000 L (10^3 L)
1 hL = 100 L (10^2 L)
1 daL = 10 L (10^1 L)
1 L
1 dL = 0.1 L ($\frac{1}{10}$ L)
1 cL = 0.01 L ($\frac{1}{100}$ L)
1 mL = 0.001 L ($\frac{1}{1000}$ L)



5.3 Capasity – between systems

US

1 mL = 0.03 fl oz
250 mL = 1 cup (4 cups = 1 L)
1 L = 2.11 pt
1 L = 1.06 qt
1 L = 0.26 gal

also 1 fl oz = 29.57 mL

ex 1 12 fl oz = ____ mL

method 1 12 ÷ 0.03
= 400 mL

method 2 12 x 29.57
= 354.84 mL

ex 2 10 L = ____ gal

10 x 0.26 = 2.6 gal

5.4 Math 10 Aw - notes

Volume - converting

Just like area - you cannot directly convert from ft to inches unless you have a chart.

The units for volume are cu ft cu yds cu in

cu means cu^3 ← this means when you convert; you have to x or ÷ 3 times

1 ft = 12 inches

1 cu ft = 12 x 12 x 12 inches = 1728 $inches^3$ or 1728 cu inches

5.5

$km^3 = 1000 \times 1000 \times 1000 \rightarrow m^3$

$hm^3 = 100 \times 100 \times 100 \rightarrow m^3$

$dam^3 = 10 \times 10 \times 10 \rightarrow m^3$

m^3

0.1 ($dm^3 = 0.1 \times 0.1 \times 0.1 \rightarrow m^3$

0.1 ($cm^3 = 0.01 \times 0.01 \times 0.01 \rightarrow m^3$

$mm^3 = 0.001 \times 0.001 \times 0.001 \rightarrow m^3$

$1 mL = 1 cm^3$

ex $226\ cm^3 \rightarrow 226\ mL$

ex 2 $500\ cm^3 = \_\_\_\_\ m^3$

$500 \times 0.01 \times 0.01 \times 0.01 = 0.0005\ m^3$

5.6 Math 10 AW – notes

$1\ cm^3 = 0.06\ cu\ in$
$1\ m^3 = 1.31\ cu\ yd$
$1\ km^3 = 0.24\ cu\ mi$

$1\ m^3 = 1.31\ cu\ yd$
$(3ft/yd) = 1.31 \times 3 \times 3 \times 3$
$= 35.37\ cu\ ft$

$1\ cu\ ft = 28.32\ L$
$1\ cm^3 = 1\ mL$

$1\ cu\ in = 16.39\ cm^3$
$1\ cu\ ft = 28.32\ dm^3$
$1\ cu\ yd = 0.76\ m^3$
$1\ cu\ mi = 4.17\ km^3$
$1\ cu\ ft = 28.32\ dm^3$
$(d = \frac{1}{10}\ or\ 0.1) = 28.32 \times 0.1 \times 0.1 \times 0.1$
$= 0.02832\ m^3$

$1\ m^3 = 1\,000\,000\ cm^3$
$1\ cu\ yd = 27\ cu\ ft$

ex 1

$1120\ cu\ in = \_\_\_\_\ cm^3$

in → cm $\quad 1120 \times 16.39 = 18356.8\ cm^3$

ex 2

$100\ m^3 = \_\_\_\_\ cu\ ft$

m → yd $\quad 100 \times 1.31 = 131\ cu\ yd$

yd → ft $\quad 131 \times 27 = 3537\ cu\ ft.$

5.8 Math 10AW - notes

Mass - Imperial

US

$1 oz = \frac{1}{16} lb$ or $0.0625 lb$

$1 lb = 16 oz$

* $1 T = 2000 lb$

UK

$1 oz = 0.0625 lb$

$1 lb = 16 oz$

* $1 T = 2240 lb$

$\xrightarrow{\times}$

$\xleftarrow{\div}$

ex $2\frac{1}{2} T =$ ____ lb (US) ; ____ lb (UK)

$2.5 \times 2000 = 5000 lb$ (US)

$2.5 \times 2240 = 5600 lb$ (UK)

5.9 Mass - Metric

* t = metric
T = imperial

$1 t = 1000 kg$

$1 kg = 1000 g$

$1 hg = 100 g$

$1 dag = 10 g$

$1 dg = 0.1 g$

$1 cg = 0.01 g$

$1 mg = 0.001 g$

$\xrightarrow{\times}$

$\xleftarrow{\div}$

ex $600 g =$ ____ kg

$600 \div 1000 = 0.6 kg$

$15 mg =$ ____ g

$15 \times 0.001 = 0.015 g$

5.10 Math 10 AW - notes

$1g = 0.04\ oz$	$1oz = 28.35g$
$1kg = 2.21\ lb$	$1lb = 0.45kg$ or $450g$
$1t = 1.10\ T$	$1T = 0.91\ t$

(us) $1T = 2000\ lb$

$lb \rightarrow kg \rightarrow 2000 \times 0.45$

$= 900\ kg$

t = tonnes (metric)

T = tons (imperial)

5.11 Temperature

$$F = \frac{9C}{5} + 32 \quad \text{and} \quad C = \frac{5}{9}(F - 32)$$

ex 1 $-2°C \rightarrow F$

$$F = \frac{9(-2)}{5} + 32$$

$$= \frac{-18}{5} + 32$$

$$= 28.4\ F$$

ex 2 $12\ F \Rightarrow C$

$$C = \frac{5}{9}(12 - 32)$$

$$= \frac{5}{9}(-20)$$

$$= \frac{-100}{9}$$

$$= -11.1\ °C$$