

## Level 1 Numeracy test – vocabulary and revision notes

### Numbers

Negative numbers – for example, -5 pronounced 'minus five'

Multiples – 3, 6, 9, 12, 15 are multiples of 3

Factors – 1, 2, 3, 4, 6 are factors of 12

Double – multiply by 2 (verb: to double)

Half – divide by 2 (verb: to halve)

Go up – Increase – Ascending. E.g. 0, 1, 2, 3, 5, 6, 8

Go down – Decrease – Descending E.g. 8, 6, 5, 3, 2, 1, 0

### Rounding

Example 1: Round 47 to the nearest 10. Is 47 nearer to 40 or to 50? It is nearer to 50, so 47 rounded to the nearest 10 is 50.

Example 2: Round 378 to the nearest 100. Is 378 nearer to 300 or 400? It is nearer to 400, so 378 rounded to the nearest 100 is 400.

Example 3: Round 1275 to the nearest 10. Is it nearer to 1270 or 1280? It is exactly half-way. In this situation, we go up, so the answer is 1280.

Example 4: Decimal rounding: Round 6.7 to the nearest whole number = 7

Round 5.38 to one decimal place = 5.4. Round 8.629 to two decimal places = 8.63.

Example 5: Round £2.76 to the nearest 10p. Is it nearer to £2.70 or £2.80? It is nearer to £2.80, so £2.76 rounded to the nearest 10p is £2.80.

Example 6: Round £12.36 to the nearest £1.00. Is it nearer to £12.00 or £13.00? It is nearer to £12.00, so £12.36 rounded to the nearest £1.00 is £12.00.

### Estimating

Estimate the answer to  $4.8 \times 3.9$ . This is approximately the same as  $5 \times 4 = 20$ . So the estimated answer to  $4.8 \times 3.9$  is 20.

Estimate the answer to  $£6.95 \times 5.8$ . This is approximately the same as  $£7 \times 6 = £42$ . So the estimated answer to  $£6.95 \times 5.8$  is £42.

### Ratio and Proportion

**Ratio** – a quantity is divided into *parts*

For example, dilute one part orange juice with three parts water (Dilute – add water)

This is written as 1:3 (the order is very important – so 3:1 is not correct)

In this example, there are four parts altogether, so 1 litre of drink would contain 250ml of juice and 750ml of water

**Proportion** – increase or decrease a quantity in proportion

e.g. to **double** the amount, multiply everything by 2

to make **five times** as much, multiply everything by 5

to make **half** the amount, divide everything by 2

For example – change quantities in a recipe

If 100g butter is needed to make 4 small cakes, how much butter will be needed to make 6 small cakes?

$100 \div 4 = 25\text{g}$  (for one cake)     $25\text{g} \times 6 = 150\text{g}$  (for six cakes)

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### Fractions

In any fraction, the 'top number' is called the numerator and the 'bottom number' is called the denominator.

A Unit Fraction is any fraction where the numerator is 1.

Fractions which are equal are called Equivalent, for example  $\frac{2}{4}$  and  $\frac{1}{2}$ .

### Find a fraction part

$\frac{3}{4}$  of 240: divide by the bottom number, multiply answer by the top number.

Example:

$$240 \div 4 = 60, \quad 3 \times 60 = 180$$

$$\text{So: } \frac{3}{4} \text{ of } 240 = 180$$

### Simplify (cancel down) fractions

3 Find a number that you can divide both top and bottom  
9 number by. In this case it would be 3. There is 1 three in 3 and 3 threes in 9, therefore

$$\frac{\underline{3} \div 3}{9 \div 3} = \frac{1}{3}$$

### Writing one number as a fraction of another

Write 20 as a fraction of 80 and cancel to the lowest terms

$$\frac{\underline{20} \div 20}{80 \div 20} = \frac{1}{4}$$

### Fractions, Percentages and Decimals that are equal (the same)

Fraction	Decimal	Percentage
1	1	100%
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{3}$	0.33	33.33%
$\frac{2}{3}$	0.67	66.67%

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### Percentages

Finding percentage parts

#### 10% method

Find 20% of 85

First find 10% by dividing 85 by 10, so  $85 \div 10 = 8.5$

$10\% = 8.5$  so  $20\% = 2 \times 10\% = 2 \times 8.5 = 17$

So 20% of 85 = 17

#### Fraction method

To find 17% of 85

$$\frac{17}{100} \times \frac{85}{1} = \frac{17 \times 85}{100} = 1445 \div 100 = 14.45$$

So 17% of 85 = 14.45

#### Writing one number as a percentage of another

Write 60 as a percentage of 240.

First write number as fraction:  $\frac{60}{240}$

Then cancel it down (make the numbers smaller)  $\frac{60}{240} \div 60 = \frac{1}{4}$

To change this into %, multiply by 100 (add two zeroes to the 1 and make it 100), then divide by 4.  $100 \div 4 = 25 = 25\%$

### Measurement

#### Length

100cm = 1m      cm -> m       $\div 100$

1m = 100cm      m -> cm       $\times 100$

10mm = 1cm      mm -> cm       $\div 10$       cm -> mm  $\times 10$

1000mm = 1m      mm -> m       $\div 1000$       m -> mm  $\times 1000$

1000m = 1km      m -> km       $\div 1000$       km -> m  $\times 1000$

#### Liquid / Water / Capacity

1000 ml = 1l      ml -> l       $\div 1000$       l -> ml  $\times 1000$

100 cl = 1l      cl -> l       $\div 100$       l -> cl  $\times 100$

1ml = 0.1 cl      ml -> cl       $\div 10$       cl -> ml  $\times 10$       1cl = 10 ml

#### Weight

1000g = 1kg      g -> kg  $\div 1000$       kg -> g  $\times 1000$

1000kg = 1 ton      kg -> t  $\div 1000$       t -> kg  $\times 1000$

#### Time

Twelve Hour Clock Half past three in the afternoon is 3.30pm. In the morning it is 3.30am.

Twenty Four Hour Clock Half past three in the afternoon is 15.30. In the morning it is 03.30.

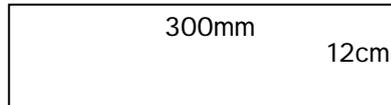
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**Temperature** 25°C is said 'Twenty five degrees Celsius'

### Perimeter

Add (+) all the sides together

(but make sure they are all either in mm, cm or m before you add)



$$300\text{mm} = 30\text{ cm}$$

$$\text{Perimeter: } 30\text{cm} + 12\text{cm} + 30\text{cm} + 12\text{cm} = 84\text{cm}$$

### Area

Multiply (x) width by the length

(Remember, again, to make sure your measurements are all in the same units)

A garden is 5m long and 250cm wide. What is the area?

$$250\text{cm} = 2.5\text{ m}$$

$$\text{Area: } 5\text{m} \times 2.5\text{m} = 12.5\text{m}^2 \text{ (remember - area is always } ^2\text{)}$$

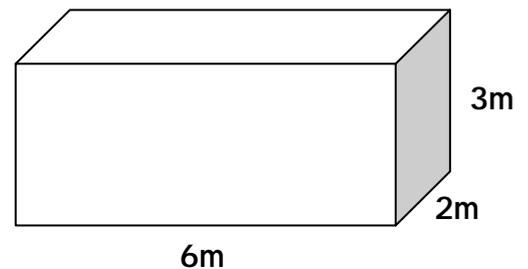
### Volume

Length x width x height

(Remember, again, to make sure your measurements are all in the same units)

$$6\text{m} \times 2\text{m} \times 3\text{m} = 6\text{m} \times 2\text{m} = 12\text{m}^2 \times 3\text{m} = 36\text{m}^3$$

Remember volume is always  $^3$



### Scale Drawings

Scale drawing - on a room plan, for example, 1cm = 2m so expressed as a ratio: 1:200.

Example: If the scale is 1:100 on a plan, what would one centimetre represent? (100 cm, which is 1 metre)

What would 10cm represent? (1000 cm, which is 10 metres)

### Vocabulary

- + add, increase, go up, addition, more, plus
- reduce/reduction, minus, take away, subtract, less, decrease
- x multiply, lots of, times, times as many/much
- ÷ divide, share, equally between, lots of, per person
- = equals, same as

**Perimeter** - distance around, fence

**Area** - floor, lawn, covered

**Volume** - contains, water, sand, anything in a box / container

**Capacity** - millilitres, centilitres, litres

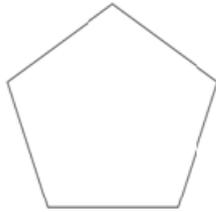
**Weight** - grams, kilograms

**Length** - millimetres, centimetres, metres, kilometres, miles

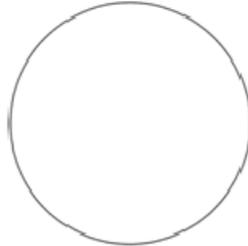
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### Shape and space

#### 2D Shapes (flat shapes)



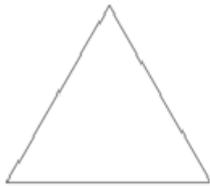
pentagon



circle



square



triangle

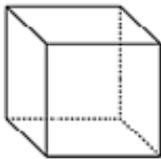


rectangle



hexagon

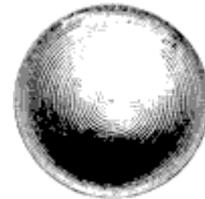
#### 3D Shapes (solid shapes)



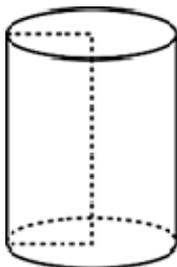
cube



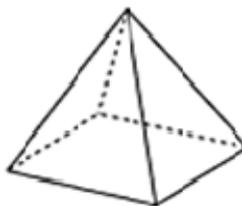
cone



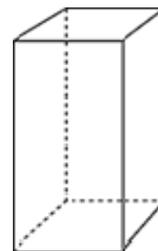
sphere



cylinder

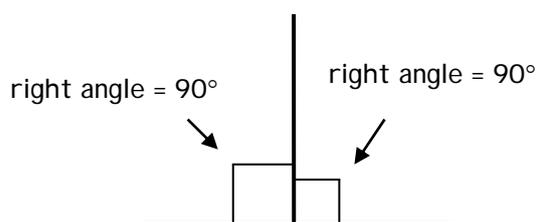


pyramid



cuboid

#### Right angles



So there are 2 right angles  
in a straight line

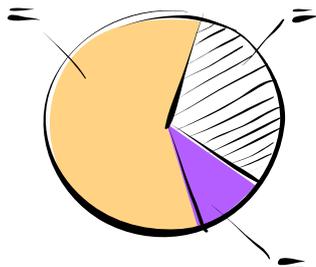
Shapes clip art from <http://etc.usf.edu/clipart/>

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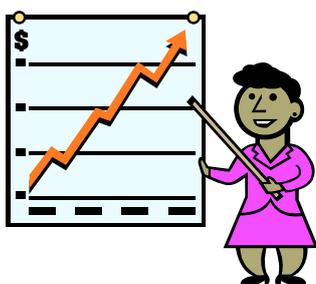
### Data Handling



Bar Chart

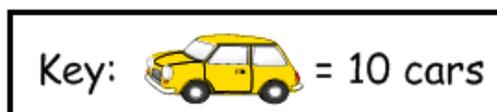
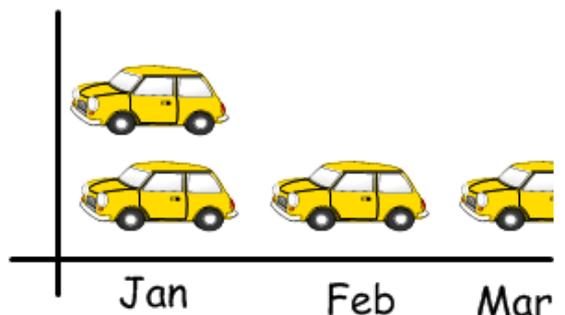


Pie Chart



Line Graph

### Number of Cars Sold



Pictogram

### Tally Chart

In a Tally Chart, IIII = 4 and IIII = 5. So the line across is 5!

Colour of car	Tally	Frequency
Black	IIII IIII II	12
White	IIII III	8
Green	III	3
Blue	IIII IIII IIII III	18
Red	III	5

### Averages

**Mean:** Add all the numbers together and divide by how many numbers you have.

Example: Find the mean for 2, 5, 8

$$2 + 5 + 8 = 15 \quad 15 \div 3 = 5 \text{ (you divide by 3 because you have 3 numbers)}$$

Mean = 5

**Range:** Biggest number minus the smallest number.

Example: Find the mean for 2, 5, 8

$$8 - 2 = 6 \text{ so the range is 6}$$