

Money Need to Know

Money 1

Ratio

To express one quantity as a ratio of another

Step 1: Make sure both quantities are in the same unit.

Step 2: Remove the units and write the numbers as a ratio.

Step 3: Simplify if possible.

To divide a number in a given ratio

Step 1 Add the ratios.

Step 2 Divide the number by this total.

Step 3 Multiply the result in step 2 by each separate ratio.

Given the ratio and one of the answers

This time we have to let the required ratio equal the answer to form our equation.

Direct Proportions

As the quantity goes up the other quantity goes up. We always try to see what the cost of ONE item is - this is called the unitary method.

Foreign Exchange

Inverse Proportion

As the quantity goes up the other quantity goes down. These questions are based in and around time.

As speed decreases the time taken to do a job increases.

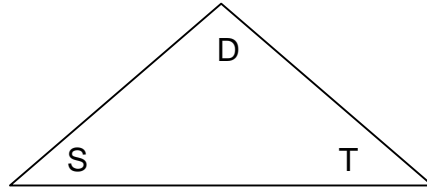
As the number of men on a job increases the time taken decreases.

Distance - Speed – Time

This comes down to two types of questions.

Type 1 Questions where we must make use of “Dad’s silly triangle”.

Type 2 To convert from m/s to km/h, or visa versa.



$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

Need to know 2 conversions

$$1 \text{ km} = 1000\text{m}$$

$$1 \text{ hour} = 3600 \text{ seconds.}$$

Money 2

Percentages

There are 3 basic types of questions with percentages.

To find the percentage of a given number

Given a percentage and its value

Note The sum of money that we started with is always 100%.

We need to try to form some sort of equation so that we can find 1% and then 100%.

To find one number as a percentage of another

Put the first number over the second and multiply by a hundred over one

$$\frac{1^{st}}{2^{nd}} \times \frac{100}{1}$$

Percentage Increase

Find the percentage and then add the answer on.

Profit and loss

$$\text{Percentage profit} = \frac{\text{profit}}{\text{cost}} \times \frac{100}{1}$$

VAT

This is the tax added onto the price of a good.

Discount

Discount will reduce the value of a product.

To find percentage error

Add the real figures.

Add the approximate figures.

Subtract the two above to get the error.

Put error over the real and multiply by a hundred over one.

Money 3

Household Bills

Two of the more common type of question here are with phone and electricity bills. Both of these follow the same basic format.

We need to find

The number of units used.

The cost of the units used (multiply units used by price per unit) which we will be given.

The standing charge (or line rental), which is a fixed charge (given in question).

Add the cost of units and standing charge to find subtotal before VAT.

The amount of VAT and add on.

Tax

We are taxed at a certain rate on the Gross income.

Find percentage of Gross income = gross tax.

Gross tax – tax credits = net tax (tax we actually pay).

Take home pay = gross income – net tax.

When there is only one tax rate.

When there are two tax rates.

Money 4

Compound Interest

Principal = the amount of money put into the bank.

Interest = the money made on my principal.

Time = the length of time in years that the principal is in the bank.

Rate = the rate of interest - a percentage of the principal

The important point about Compound Interest is that at the end of year interest is added to the principal to give us the Amount so $A=P+I$.

Given the Principal and asked to find the Amount or Interest

$$\text{Interest} = \frac{PR}{100}$$

$$A = P + I$$

Note Per annum means per year.

Given the Amount and asked to find the Principal

Must start at year 2 and work backwards.

In terms of percentages we start the year with 100% and in this question we gained 5%, so that at the end of the year we had 105% of what we started the year with.

To find the Rate of Interest

$$\text{Percentage interest} = \frac{\text{interest}}{\text{principal}} \times \frac{100}{1}$$

Given the Interest to find the Principal

When the principal is unknown as in this question let the principal be €100 and continue.