Numeracy Information Factsheets

SUBJECT: FORMULAE in every-day situations

KEY-WORDS: Constant, variable, fixed cost, variable cost

LINK-WORDS: Algebra, Formula, BIDMAS

NOTES

Mathematical formulae are really only a set of instructions to carry out the same calculations on different numbers. If you run a plumbing call-out service, you will usually have a set amount to charge for a call-out (a fixed cost) and then a variable charge added to this as a cost per hour.

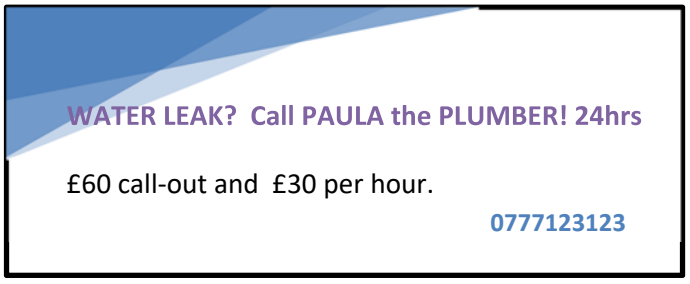
The formula just labels each variable (anything that can change its value) with a letter, and sticks in the constant as a number.

We can decide the letters -for our first example we could use **C** for total cost, and **h** for the number of hours, for our first

(Rules of algebra mean that 30 x h is written as 30h)

Now, the only variable is the number of hours worked. This value can be substituted (put in place of) the letter h in our rule (formula!)

EXAMPLE



C = 30 x h + 60 or even better – C = 30h + 60

If she works 2 hours: C = 30 x 2 + 60
= £120
(£ symbol only needed in the answer)

If she works 3.5 hours: C = 30 x 3.5 + 60
= £165

DOs

Do remember that in algebra, we don't usually bother with the multiply symbol (x) and that we must have the letter x clearly different to the multiply symbol to avoid confusion.

Convention (what people usually do) tells us to use a capital letter for whatever we are trying to calculate and a lower-case letter for the variable.

Do remember that it doesn't really matter what the letters are, just that you must have different letters to represent different things.

DON'Ts

Don't substitute the number incorrectly – 3a actually means 3 x a, so substituting the value a = 2 gives 3 x 2 = 6, NOT 32.

Don't forget to follow the rules of BIDMAS .

Y = 3 + 4 x 2
= 3 + 8 (NOT 7 x 2)
= 11.

RELEVANT SUBJECTS

Anywhere where standard methods of calculations are used – eg containing fixed costs and variable costs.

EXAMPLES and LINKS