SHQ: How do I write and use an algebraic expression?

When using algebra, letters are used to represent an 'unknown' value.

Equations or formulae are used to calculate a number that isn't known.

In these formulae. Mathematicians sometimes take 'short cuts'! For example, instead of writing 3 x n, they will write 3n. Some other examples are shown here:

3 x n = 3n
n x n = n ²
6 x n x n = 6 n²

n ÷ 5 = n/5
a x b = ab

Formulae can be used to calculate a number of 'things' that we don't know, but that is dependent upon another number that we do know.

For example:
Write a formula which could be used to calculate the number of wheels (w) on a number of bikes (b)

We know that there are always 2 wheels on each bike so the number of wheels will always be 2 x the number of bikes.

The formula will therefore be: w = 2b (*where b = the number of bikes*)

It doesn't matter how many bikes there are, we can use this formula to calculate the total number of wheels.

Remember, the variable that you DON'T know (the one you are calculating) always goes on the left hand side of the equation.

<u>Now it's your turn:</u>

Write a formula for the following:

a) The number of days (d) in w weeks tip, this formula will start with d=
b) The number of grams (g) in K kilograms (*where K = the number of kilograms*)
c) The number of hours (h) in d days (*where d = the number of days*)
d) The number of legs (l) on s spiders (*where s = the number of spiders*)

Now use your formula to find:
a) the number of days in 19 weeks
b) The number of grams in 21 kilograms
c) The number of hours in 42 days
d) The number of legs on 29 spiders

Now think of 'real life' situations of your own that could be expressed as a formula. Choose appropriate letters for each part of the equation. Then write an example showing how this formula can be used to solve a problem.