MATHS IN ENGLISH

5. Fifth sequence: "Prime factors"

Get to : http://www.bbc.co.uk/schools/gcsebitesize/maths/

Choose "Number" → "Factors, powers and roots" → " Prime factors-foundation" → "activity".

The words marked with an asterisk are translated in French at the bottom of the paragraph.*

Meet posh prime* numbers, and find out why they are the hardest working aristocrats of the maths world.*

Prime numbers are pretty posh; they have just two factors: themselves and one. Here are the first few prime numbers we'd like you to meet.*

What is drawn* on the numbers to show that they are "posh"? .....

One doesn't get in because it's not a prime number. It's so posh that it doesn't have any factors, apart from itself.

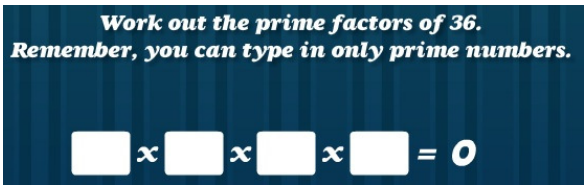
Why isn't 1 a prime number? .....

You could think of prime numbers as the aristocrats of the maths world. Except this lot don't mind working for a living. In fact prime numbers are the building* blocks (or factors) of all other numbers.*

What are the prime numbers for the other numbers? .....

Let's look at the prime factors of twenty-four. We begin by dividing by the lowest prime number that will work. So twenty-four is two times twelve. Twelve is two times six, and six is two times three. This means that the prime factors of twenty-four are two, two, two and three!*

When you want to find out the prime factors of 24, what is the first operation you do? .....
How can you write 6 as a multiplication between two prime numbers? .....
What are the prime factors of twenty-four? .....



Ok; now it's your chance to shine: work out the prime factors of thirty-six, and fill in the gaps!

And your answer is: $36 = ...\times.....\times.....\times.....$

Vocabulary:

posh : snob. N.B.: En français, le mot "snob" vient de la contraction de "sans noblesse".
prime: premier
pretty: joli, mais est parfois utilisé pour dire "assez". Par exemple, "pretty bad" signifie "assez mauvais".
to draw (drew, drawn): dessiner.
to work for a living: travailler pour gagner sa vie.
to build: construire.
lowest: le plus bas (ici, le plus petit).

Exercise:

Here are the first prime numbers: 2 ; 3 ; 5 ; 7 ; 11 ; 13 ; 17 ; 19 ...
Work out the prime factors decomposition of the following numbers:
6=.....
20=.....
12 = ...
50=.....
60=.....
120=.....

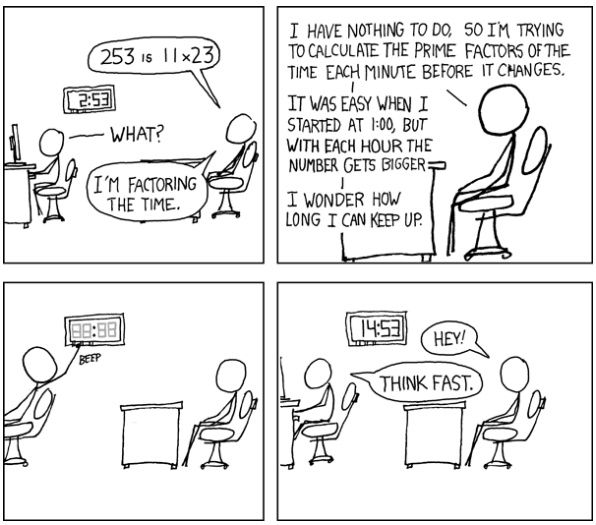
This decomposition can be used to simplify fractions. For example, as the decomposition of 40 is $40 = 2\times2\times2\times5$, and the decomposition of 420 is $420 = 2\times2\times3\times5\times7$, we can simplify the fraction $\frac{40}{420}$ as follows:

$$\frac{40}{420} = \frac{2\times2\times2\times5}{2\times2\times3\times5\times7} = \frac{\cancel{2}\times\cancel{2}\times2\times\cancel{5}}{\cancel{2}\times\cancel{2}\times3\times\cancel{5}\times7} = \frac{2}{3\times7} = \frac{2}{21}.$$

And $\frac{2}{21}$ is the irreducible (unsimplifiable) form of the fraction $\frac{40}{420}$.

Do the same and find out the irreducible form of the following fractions (please write the calculations):

$\frac{6}{20} = ...$
$\frac{90}{60} = ...$
$\frac{50}{120} = ...$



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