Prime Factorisation

Splitting a number into its prime factors (a list of primes that multiply to make the number).

1. Fill in the gaps.

All numbers more than 1 are either **prime** or **composite**.	Remember:
Prime numbers have exactly _____ factors.	A **factor** goes into a number. Eg 3 and 4 are factors of 12.
Composite numbers have more than _____ factors.	A **multiple** is in the times table of a number.
1 is not a prime or a composite, because: _____ .	Eg 4 and 12 are multiples of 4.

2. Use the factor tree method to find the prime factorisation of the following numbers.

A few have been done for you, as examples.

1	2	3	4
Not prime or composite: can't be done.		prime already: no need to split.	
	$2 =$	$3 = 3$	$4 =$
5	**6**	**7**	**8**
$5 =$	$6 =$	$7 =$	$8 = 2 \times 2 \times 2$
9	**10**	**11**	**12**
$9 =$	$10 =$	$11 =$	$12 =$
13	**14**	**15**	**16**
$13 =$	$14 =$	$15 =$	$16 =$
17	**18**	**19**	**20**
$17 =$	$18 =$	$19 =$	$20 =$

Prime Factorisation SOLUTIONS

Splitting a number into its prime factors (a list of primes that multiply to make the number).

1. Fill in the gaps.

All numbers more than 1 are either **prime** or **composite**.	Remember:
Prime numbers have exactly **two** factors.	A **factor** goes into a number. Eg 3 and 4 are factors of 12.
Composite numbers have more than **two** factors.	A **multiple** is in the times table of a number.
1 is not a prime or a composite, because:	Eg 4 and 12 are multiples of 4.
It has only one factor (the number 1).	

2. Use the factor tree method to find the prime factorisation of the following numbers.

A few have been done for you, as examples.

1	2	3 Prime already	4
Not prime or composite: can't be done.	$2 = 2$	$3 = 3$	$4 = 2 \times 2$
5	6	7	8
$5 = 5$	$6 = 2 \times 3$	$7 = 7$	$8 = 2 \times 2 \times 2$
9	10	11	12
$9 = 3 \times 3$	$10 = 2 \times 5$	$11 = 11$	$12 = 2 \times 2 \times 3$
13	14	15	16
$13 = 13$	$14 = 2 \times 7$	$15 = 3 \times 5$	$16 = 2 \times 2 \times 2 \times 2$
17	18	19	20
$17 = 17$	$18 = 2 \times 3 \times 3$	$19 = 19$	$20 = 2 \times 2 \times 5$

Note: the method is not shown because often there are many different ways to split up a number. Provided you get the same primes at the end, your method was probably right.

For instance, 20 can be split first into 4 and 5, then the 4 split into 2 and 2, or you could split it into 2 and 10 at the start, then split the 10 into 2 and 5. Both produce $2 \times 2 \times 5$.