Exponents

Exponents are shorthand repeated multiplication of a <u>number (the base)</u> by <u>itself.</u>

For instance, the shorthand (exponent) for multiplying three copies of the number 5 is 5^3.

$5^3 \leftarrow$ superscript 3/exponent/power of
(tells you how many times you multiply the base by itself).

base

So, $5^3 = 5 \times 5 \times 5$

$25 \times 5 = 125$

Examples:

1) $2^3 = 2 \times 2 \times 2 = 8$

$4 \times 2 = 8$

2) $10^4 = 10 \times 10 \times 10 \times 10 = 10\,000$

$100 \times 10 = 1000 \times 10 = 10000$

3) $3^2 = 3 \times 3 = 9$

Important extra points to remember about exponents:

1) Superscripts/exponents 2 and 3 have special names:

$4^2 \leftarrow$ squared

$4^3 \leftarrow$ cubed

2) Any base to the power of/exponent 1 is equal to the base value

eg. $6^1 = 6$

$8^1 = 8$

3) Any base to the power of/exponent 0 is equal to <u>one</u>!

eg. $7^0 = 1$

$10^0 = 1$