

Calculating Indices / Powers

Using powers or indices is a quick way of repeatedly multiplying a number by itself.

2^2	2×2	2 to the power of 2 OR 2 squared
2^3	$2 \times 2 \times 2$	2 to the power of 3 OR 2 cubed
2^4	$2 \times 2 \times 2 \times 2$	2 to the power of 4 OR 2 to the fourth
a^2	$a \times a$	a to the power of 2 OR a squared
b^2	$b \times b$	b to the power of 2 OR b squared
y^3	$y \times y \times y$	y to the power of 3 OR y cubed

The Rules

Use **BIDMAS**

Always perform functions in the correct order:

Brackets

Indices

Division

Multiplication

Addition

Subtraction

Example

Dividing powers	subtract indices	$5^8 \div 5^3 = 5^{8-3} = 5^5$
Multiplying powers	add indices	$5^8 \times 5^3 = 5^{8+3} = 5^{11}$
Number to the power 1	always equals itself	$2^1 = 2$
Number to the power 0	always equals 1	$2^0 = 1$
Powers raised to powers	multiply indices	$(2^2)^3 = 2^{2 \times 3} = 2^6$

Example

$$4x + 2y - 2x + 3y$$

Rule 1 We do not need to think about what 'x' and 'y' stand for. They are just missing numbers or unknown values

Remember

Rule 2 Collect the like terms together keeping the correct signs with their respective signs (the sign in front). *All integers are either positive (+) or negative (-) and if no sign is present they are (+)*

$$4x + 2y - 2x + 3y$$

$$4x - 2x + 2y + 3y$$

the simplified expression is

$$2x + 5y$$