

Theory:

When brackets are removed from around a sum or difference, then any factors outside the brackets must be multiplied by each term inside the brackets.

For example, to remove the brackets in this expression:

$$a(x + y)$$

the factor 'a' outside the brackets must be multiplied by **both** the 'x' and the 'y' inside the brackets, like this:

$$a \times x + a \times y$$

To '**expand**' an expression means to remove the brackets.

During expansion, the factor 'a' is **distributed** over the terms 'x' and 'y'.

Differences are expanded in the same way. For example, expanding this expression:

$$a(x - y)$$

gives this expanded expression:

$$a \times x - a \times y$$

If there are several factors outside the brackets, and more than two terms inside the brackets, then exactly the same procedure applies.

For example, expanding:

$$3ab^2c(2a + 3ab - 5bc^2 + 1)$$

gives:

$$3ab^2c \times 2a + 3ab^2c \times 3ab - 3ab^2c \times 5bc^2 + 3ab^2c \times 1$$

In this case, each term can then be simplified, giving:

$$6a^2b^2c + 9a^2b^3c - 15ab^3c^3 + 3ab^2c$$