# Algebra – Simplifying Brackets

The **distributive law** is used to multiply a number or variable outside brackets by every term inside the brackets.

The rule is:

$$a(b + c) = ab + ac$$

This means the value outside the brackets must be distributed to each term inside.

**Step-by-step examples**

**Example 1**

Simplify:

$$3(x + 4)$$

Multiply the 3by both terms inside the bracket:

$$3 \times x + 3 \times 4$$

So:

$$= 3x + 12$$

**Example 2**

Simplify:

$$3x(x + 4)$$

Multiply the 3by both terms inside the bracket:

$$(3x \times x) + (3x \times 4)$$

So:

$$= 3x^2 + 12x$$

## Simplify

1. 4( 3b + 2 ) =

2. 3( 2a + 2b ) =

3. 5( a + 3b + 2c ) =

4. b( 4 + c ) =

5. b( b+6 ) =

i. $b^2 + 6$ ii. $b^2 + 6b$ iii. 8b iv. 2b + 6

LIVEWORKSHEETS

6. $2c(2c + 6) =$

a. $4 + c^2 + 2c + 12$ b. $c^2 + 4c + 6$ c. $4c^2 + 12c$ d. $4 + c^2 + 12c$

7. $2c( 3f + 5c) =$

a. $6 + cf + 10c^2$ b. $6cf + 10c^2$ c. $30cfc$ d. $30c^2f$

8. $4b( b + 4 + 2c ) =$

a. $4b^2 + 16b + 8bc$ b. $4 + b^2 + 16b + 8c$ c. $32b^2c$

i. $2( 3 \times 6 ) =$

ii. $3( 4 \times a ) =$

iii. $4b( 3 \times b ) =$

a. $12 + 4b^2$ b. $12b + 4b^2$ c. $12b^2$

LIVEWORKSHEETS