

$$3a^2b \times 4ab^3$$

numbers:  $3 \times 4 = 12$

a:  $a^2 \times a = a^3$

b:  $b \times b^3 = b^4$

$$= 12a^3b^4$$

Factorising is the opposite of expanding.

If we were given  $-3(x+5)$ , we could expand this, and then afterwards

we may want to factorise it back to its original form.

expanding

$$-3(x+5)$$

$$= -3x - 15 \leftarrow \text{expanded version}$$

factorising

$$3 \times 1 = 3$$

$$3 \times 5 = 15$$

$$3 \times \frac{-x}{1} = -3x$$

$$3 \times \frac{-5}{1} = -15$$

$$-1 \times 5 = -5$$

$$3(-x-5)$$

$$-3(x+5)$$

Factorise

$$-3x - 12$$

$$= -3(x+4)$$

$$-3 \times \frac{x}{1} = -3x$$

$$-3 \times \frac{4}{1} = -12$$

$$7a + 7b$$

$$7(a+b) \checkmark$$

$$7 \times \frac{a}{1} = 7a$$

$$7 \times \frac{b}{1} = 7b$$

$$\frac{(2^2 a^3)^2}{3a^2} = \frac{(4a^3)^2}{3a^2} = \frac{4^2 (a^3)^2}{3a^2} = \frac{16a^{3 \times 2}}{3a^2}$$

$$= \frac{16a^6}{3a^2} = \frac{16}{3}a^4$$