

## Expanding single brackets

### Starter

1. **(Review of last lesson)** The total surface area  $A$  of a cone is given by  $A = \pi r(r + l)$ . Find  $A$  when  $r = 7$  and  $l = 11$ . Give your answer in terms of  $\pi$ .
2. **(Review of previous material)**  
Expand these brackets: (a)  $7(x + 6)$  (b)  $x(9x - 4)$

### Notes

When expanding single brackets, the term outside the bracket multiplies each of the terms inside the bracket.

$$4(5x - 3) = 4 \times 5x - 4 \times 3 = 20x - 12$$

Remember:

$$\begin{aligned}x \times x &= x^2 \\x \times x^2 &= x^3 \\x^2 \times x^3 &= x^{2+3} = x^5\end{aligned}$$

A negative sign outside the bracket changes the sign of the terms inside the bracket.

$$-8(7x - 9) = (-8) \times 7x - (-8) \times 9 = -56x - (-72) = -56x + 72$$

### E.g. 1 Expand these brackets

(a)  $8(3y - 7)$  (b)  $6x(2x - 7)$  (c)  $-5y(8 - 9y)$   
(d)  $-(3x - 8)$  (e)  $ab(4a - 7b)$  (d)  $3x^2y(x^4 + 7y)$

**Working:** (a)  $8(3y - 7) = 24y - 56$

Video: [Expanding brackets](#)

[Solutions to Starter and E.g.s](#)

### Exercise

9-1 class textbook: p101 M4.3 Qu 19-42  
A\*-G class textbook: p92 M4.3 Qu 19-42  
9-1 homework book: p34 M4.3 Qu 13-37  
A\*-G homework book: p26 M4.3 Qu 13-36

### Summary

When expanding single brackets, the term outside the bracket multiplies each of the terms inside the bracket.

$$4(5x - 3) = 4 \times 5x - 4 \times 3 = 20x - 12$$

A negative sign outside the bracket changes the sign of the terms inside the bracket.

$$-8(7x - 9) = (-8) \times 7x - (-8) \times 9 = -56x - (-72) = -56x + 72$$