

## 10.7 Expanding Brackets

1. Multiply out and simplify.

(a)  $x(1 + x)$

(b)  $2(2x + 1)$

(c)  $2x(x - 1)$

(d)  $4x(2 + x)$

(e)  $5x(3 - 2x)$

(f)  $x^2(1 + x)$

(g)  $(x + 1)(x + 2)$

(h)  $(x + 1)(x - 1)$

(i)  $(x + 2)(x - 1)$

(j)  $(x - 3)(x - 2)$

(k)  $(1 + a)(1 + 2a)$

(l)  $(x + y)(x - y)$

(m)  $(ax + b)(cx - d)$

(n)  $(x + 1)^2$

2. Expand the following:

(a)  $6(3x + y)$

(b)  $5z(z - 2y)$

(c)  $\frac{1}{2}(2xy - 4yz)$

(d)  $q(p + 2r - 3s)$

(e)  $(p + q)(r + s)$

(f)  $(x + y)(z + 2w)$

(g)  $(3a + b)(a + c)$

(h)  $(m + 2n)(2p + 3q)$

(i)  $(a - b)(c + d)$

(j)  $(2e - f)(2g - h)$

(k)  $(3p - 4q)(s + t)$

(l)  $(a + 7)(2b + 5)$

- (m)  $(x + 3)(x + 4)$       (n)  $(a + 5)(a - 3)$       (o)  $(x - 7)(x - 6)$   
 (p)  $(3 + c)(6 - c)$       (q)  $(1 - 3x)(4 + 3y)$       (r)  $(2p + 3)(p + 5)$   
 (s)  $(4x + 5y)(2x + 3y)$       (t)  $(d - 7)(d - 5)$       (u)  $(a + 5)^2$   
 (v)  $(x - 3)^2$       (w)  $(b + 2)^2$       (x)  $(e - 4)^2$   
 (y)  $(2x + 1)^2$       (z)  $(3x - 2)^2$

3. Simplify these expressions as far as possible.

- (a)  $(3p + 2q)^2$       (b)  $(4m - 3n)^2$   
 (c)  $(x + 5)(x - 5)$       (d)  $(y + 7)(y - 7)$   
 (e)  $(5a + 3)(5a - 3)$       (f)  $(6x + 5y)(6x - 5y)$   
 (g)  $(x - 2)(x + 2)$       (h)  $(x - a)(x + a)$

4. (a) Multiply out and simplify

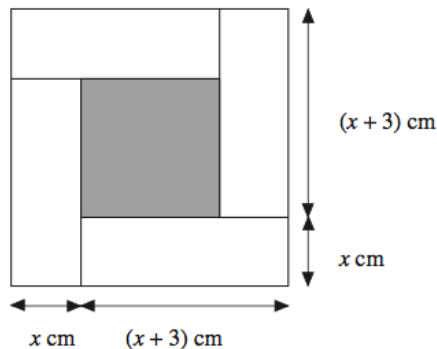
$$(3x - 1)(2x + 3)$$

(b) Show how you could use your answer to (a) to work out  $29 \times 23$ .

5. (a) (i) Multiply out  $4x(x + 3)$ .

(ii) Multiply out and simplify  $(2x + 3)(2x + 3)$

(b) Four identical rectangular tiles are placed around a square tile as shown in the diagram.



Using your answers to (a), or otherwise, find the area of the square tile.

6. (a) Expand  $d(d^2 + 6)$   
 (b) Simplify  $g^4 \times g^4$   
 (c) Expand and simplify  $2(p + 5) + 3(2p - 1)$
7. (a) Expand and simplify  $4(2x - 1) + 3(x + 6)$   
 (b) Expand  $x^2(4 - 2x)$

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