

EXPANDING BRACKETS - PRACTICE QUESTIONS



metatutor

1.

Expand:

$$(a) 2(3x + 4) = 6x + 8$$

$$(b) 3(5x - 2) = 15x - 6$$

$$(c) 5(6x + 5) = 30x + 25$$

$$(d) 10(2x - 3) = 20x - 30$$

$$(e) 4(4x + 7) = 16x + 28$$

$$(f) 11(3x + 5) = 33x + 55$$

$$(g) 8(x - 4) = 8x - 32$$

$$(h) 9(x + 3) = 9x + 27$$

$$(i) 12(x - 4) = 12x - 48$$

$$(j) 6(6x - 7) = 36x - 42$$

$$(k) 12(3x + 2) = 36x + 24$$

$$(l) 5(10x - 7) = 50x - 35$$

$$(m) 7(x + 11) = 7x + 77$$

2.

Expand:

$$(a) x(x + 1) = x^2 + x$$

$$(b) x(x - 8) = x^2 - 8x$$

$$(c) x(x + 6) = x^2 + 6x$$

$$(d) x(x - 10) = x^2 - 10x$$

$$(e) x(2x + 7) = 2x^2 + 7x$$

$$(f) x(5x - 8) = 5x^2 - 8x$$

$$(g) x(10x - 13) = 10x^2 - 13x$$

$$(h) x(x + 25) = x^2 + 25x$$

3.

Expand:

- (a) $2x(3x + 5) = 6x^2 + 10x$
(b) $3x(4x + 7) = 12x^2 + 21x$
(c) $4x(5x - 11) = 20x^2 - 44x$
(d) $10x(10x - 9) = 100x^2 - 90x$
(e) $6x(7x + 4) = 42x^2 + 24x$
(f) $5x(4x - 9) = 20x^2 - 45x$
(g) $8x(x + 5) = 8x^2 + 40x$
(h) $7x(7x + 3) = 49x^2 + 21x$
(i) $2x(12x - 5) = 24x^2 - 10x$
(j) $9x(3x + 4) = 27x^2 + 36x$
(k) $11x(4x + 9) = 44x^2 + 99x$
(l) $4x(12x + 7) = 48x^2 + 28x$
(m) $6x(x - 10) = 6x^2 - 60x$

4.

Expand:

- (a) $4(4 - x) = 16 - 4x$
(b) $3(10 - 3x) = 30 - 9x$
(c) $9(3 - 4x) = 27 - 36x$
(d) $x(5 - x) = 5x - x^2$
(e) $4x(10 - 9x) = 40x - 36x^2$
(f) $6(6 - 7x) = 36 - 42x$
(g) $2x(11 - 4x) = 22x - 8x^2$
(h) $x(100 - x) = 100x - x^2$

5.

Expand:

$$(a) 3(3x + 5) = 9x + 15$$

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

$$(c) x(x + 12) = x^2 + 12x$$

$$(d) 4x(3x - 10) = 12x^2 - 40x$$

$$(e) 5(9 - x) = 45 - 5x$$

$$(f) 8(8x + 5) = 64x + 40$$

$$(g) 6x(2x - 3) = 12x^2 - 18x$$

$$(h) 4(x + 6) = 4x + 24$$

$$(i) x(x - 20) = x^2 - 20x$$

$$(j) 7x(10 - 3x) = 70x - 21x^2$$

$$(k) 9(2x + 5) = 18x + 45$$

$$(l) 11(4x - 7) = 44x - 77$$

$$(m) 5x(8x - 5) = 40x^2 - 25x$$

$$(n) 6x(9x + 4) = 54x^2 + 24x$$

$$(o) 7(4x + 7) = 28x + 49$$

$$(p) x(10 - x) = 10x - x^2$$

$$(q) 20(x + 10) = 20x + 200$$

$$(r) 9x(4 - 3x) = 36x - 27x^2$$

$$(s) 5(4x + 11) = 20x + 55$$

$$(t) 10x(10x - 7) = 100x^2 - 70x$$

$$(u) 6(5 - x) = 30 - 6x$$

$$(v) 3x(7 - 2x) = 21x - 6x^2$$

$$(w) 12(3x + 4) = 36x + 48$$

6.

Expand and simplify:

$$\begin{aligned} \text{(a) } 2(3x + 2) + 5(3x + 1) &= 6x + 4 + 15x + 5 \\ &= 21x + 9 \end{aligned}$$

$$\begin{aligned} \text{(b) } 3(5x + 4) + 4(x - 2) &= 15x + 12 + 4x - 8 \\ &= 19x + 4 \end{aligned}$$

$$\begin{aligned} \text{(c) } x(x + 10) + 2x(x + 2) &= x^2 + 10x + 2x^2 + 4x \\ &= 3x^2 + 14x \end{aligned}$$

$$\begin{aligned} \text{(d) } 3x(5x - 3) + x(x + 6) &= 15x^2 - 9x + x^2 + 6x \\ &= 16x^2 - 3x \end{aligned}$$

$$\begin{aligned} \text{(e) } 5x(4x + 3) + 2x(x - 4) &= 20x^2 + 15x + 2x^2 - 8x \\ &= 22x^2 + 7x \end{aligned}$$

$$\begin{aligned} \text{(f) } x(x + 2) + 3(3x + 5) &= x^2 + 2x + 9x + 15 \\ &= x^2 + 11x + 15 \end{aligned}$$

$$\begin{aligned} \text{(g) } 7(5 - 2x) - 2(4x - 1) &= 35 - 14x - 8x + 2 \\ &= 37 - 22x \end{aligned}$$

$$\begin{aligned} \text{(h) } 4x(4 + x) - 3(2x - 3) &= 16x + 4x^2 - 6x + 9 \\ &= 4x^2 + 10x + 9 \end{aligned}$$

$$\begin{aligned} \text{(i) } 6x(x + 2) - 2x(2x - 5) &= 6x^2 + 12x - 4x^2 + 10x \\ &= 2x^2 + 22x \end{aligned}$$

$$\begin{aligned} \text{(j) } 9(5 - 2x) + x(3x + 4) &= 45 - 18x + 3x^2 + 4x \\ &= 3x^2 - 14x + 45 \end{aligned}$$

7.

Expand and simplify:

$$\begin{aligned} \text{(a) } (x+1)(x+2) &= x^2 + x + 2x + 2 \\ &= x^2 + 3x + 2 \end{aligned}$$

$$\begin{aligned} \text{(b) } (x+3)(x+4) &= x^2 + 3x + 4x + 12 \\ &= x^2 + 7x + 12 \end{aligned}$$

$$\begin{aligned} \text{(c) } (x+5)(x+6) &= x^2 + 5x + 6x + 30 \\ &= x^2 + 11x + 30 \end{aligned}$$

$$\begin{aligned} \text{(d) } (x+2)(x+8) &= x^2 + 2x + 8x + 16 \\ &= x^2 + 10x + 16 \end{aligned}$$

$$\begin{aligned} \text{(e) } (x-1)(x+4) &= x^2 - x + 4x - 4 \\ &= x^2 + 3x - 4 \end{aligned}$$

$$\begin{aligned} \text{(f) } (x+5)(x-3) &= x^2 + 5x - 3x - 15 \\ &= x^2 + 2x - 15 \end{aligned}$$

$$\begin{aligned} \text{(g) } (x+2)(x-5) &= x^2 + 2x - 5x - 10 \\ &= x^2 - 3x - 10 \end{aligned}$$

$$\begin{aligned} \text{(h) } (x-6)(x+4) &= x^2 - 6x + 4x - 24 \\ &= x^2 - 2x - 24 \end{aligned}$$

$$\begin{aligned} \text{(i) } (x+10)(x-10) &= x^2 + 10x - 10x - 100 \\ &= x^2 - 100 \end{aligned}$$

$$\begin{aligned} \text{(j) } (x-4)(x-2) &= x^2 - 4x - 2x + 8 \\ &= x^2 - 6x + 8 \end{aligned}$$

8.

Expand and simplify:

$$\begin{aligned} \text{(a) } (2x + 1)(x + 1) &= 2x^2 + x + 2x + 1 \\ &= 2x^2 + 3x + 1 \end{aligned}$$

$$\begin{aligned} \text{(b) } (x + 2)(3x + 2) &= 3x^2 + 6x + 2x + 4 \\ &= 3x^2 + 8x + 4 \end{aligned}$$

$$\begin{aligned} \text{(c) } (4x - 1)(x + 3) &= 4x^2 - x + 12x - 3 \\ &= 4x^2 + 11x - 3 \end{aligned}$$

$$\begin{aligned} \text{(d) } (2x + 3)(2x + 5) &= 4x^2 + 6x + 10x + 15 \\ &= 4x^2 + 16x + 15 \end{aligned}$$

$$\begin{aligned} \text{(e) } (3x - 2)(2x + 1) &= 6x^2 - 4x + 3x - 2 \\ &= 6x^2 - x - 2 \end{aligned}$$

$$\begin{aligned} \text{(f) } (4x - 1)(3x - 1) &= 12x^2 - 3x - 4x + 1 \\ &= 12x^2 - 7x + 1 \end{aligned}$$

9.

Expand and simplify:

$$\begin{aligned} \text{(a) } (x + 3)^2 &= (x + 3)(x + 3) = x^2 + 3x + 3x + 9 \\ &= x^2 + 6x + 9 \end{aligned}$$

$$\begin{aligned} \text{(b) } (x + 5)^2 &= (x + 5)(x + 5) = x^2 + 5x + 5x + 25 \\ &= x^2 + 10x + 25 \end{aligned}$$

$$\begin{aligned} \text{(c) } (x - 6)^2 &= (x - 6)(x - 6) = x^2 - 6x - 6x + 36 \\ &= x^2 - 12x + 36 \end{aligned}$$

$$\begin{aligned} \text{(d) } (2x + 3)^2 &= (2x + 3)(2x + 3) = 4x^2 + 6x + 6x + 9 \\ &= 4x^2 + 12x + 9 \end{aligned}$$

$$\begin{aligned} \text{(e) } (3x - 4)^2 &= (3x - 4)(3x - 4) = 9x^2 - 12x - 12x + 16 \\ &= 9x^2 - 24x + 16 \end{aligned}$$

10.

Expand and simplify:

$$(a) 3(4x + 3) = 12x + 9$$

$$(b) x(x - 12) = x^2 - 12x$$

$$(c) (x + 4)(x + 6) = x^2 + 4x + 6x + 24 \\ = x^2 + 10x + 24$$

$$(d) 4x(x - 5) = 4x^2 - 20x$$

$$(e) (x - 5)(x + 2) = x^2 - 5x + 2x - 10 \\ = x^2 - 3x - 10$$

$$(f) 5(5x - 6) = 25x - 30$$

$$(g) (2x + 5)(x - 4) = 2x^2 + 5x - 8x - 20 \\ = 2x^2 - 3x - 20$$

$$(h) (x - 4)(x - 2) = x^2 - 4x - 2x + 8 \\ = x^2 - 6x + 8$$

$$(i) 10(9 - 4x) = 90 - 40x$$

$$(j) 6(2x + 5) + 4x(x + 5) = 12x + 30 + 4x^2 + 20x \\ = 4x^2 + 32x + 30$$

$$(k) (3x - 5)(x + 2) = 3x^2 - 5x + 6x - 10 \\ = 3x^2 + x - 10$$

$$(l) 3x(3x + 2) - x(x + 10) = 9x^2 + 6x - x^2 - 10x \\ = 8x^2 - 4x$$

11.

Expand and simplify:

$$(a) x^2(2x + 5) = 2x^3 + 5x^2$$

$$(b) x^3(x^2 - 7) = x^5 - 7x^3$$

$$(c) 3x(x^2 + 6) = 3x^3 + 18x$$

$$(d) 2a(2b + a) = 4ab + 2a^2$$

$$(e) 4c(c - 4d) = 4c^2 - 16cd$$

$$(f) 3e(2e + f) = 6e^2 + 3ef$$

$$(g) g(g - 4h) = g^2 - 4hg$$

$$(h) 2mn(5m + 2) = 10m^2n + 4mn$$

$$(i) (x + y)^2 = (x+y)(x+y) = x^2 + xy + xy + y^2 \\ = x^2 + 2xy + y^2$$

$$(j) 3p(5 - q) + 6(p + 3q) = 15p - 3pq + 6p + 18q \\ = 21p - 3pq + 18q$$

$$(k) 4x(x - 2y) - x(y + 5x) = 4x^2 - 8xy - xy - 5x^2 \\ = -x^2 - 9xy$$

$$(l) 5(4x + 3y + 7) = 20x + 15y + 35$$