

Expanding Double Brackets

ANSWERS

1



Expand and simplify.

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

$$\text{middle terms: } 6x + 5x = 11x$$

Answer $-2x^2 + 11x - 15$

2



Expand and simplify.

$$(x^2 + 4)(x^3 - 2)$$

$$x^2 \times x^3 = x^5, \text{ no like terms}$$

Answer $x^5 + 4x^3 - 2x^2 - 8$

3



Expand and simplify.

$$\left(\frac{1}{2}x + 3\right)(4x - 2)$$

$$2x^2 - x + 12x - 6$$

Answer $2x^2 + 11x - 6$

4



Expand and simplify.

$$(x^3 + 2x^{-1})(x^2 - 3)$$

$$2x^{-1} \times x^2 = 2x$$

Answer $x^5 - 3x^3 + 2x - 6x^{-1}$

5



Expand and simplify.

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

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

$$4x^6 - 10x^3 - 10x^3 + 25$$

Answer $4x^6 - 20x^3 + 25$

6



$$(ax + 3)(2x + b) = 10x^2 + x - 3$$

Find a and b .

$$2a = 10 \text{ and } 3b = -3$$

$$\text{check: } 5 \times -1 + 3 \times 2 = 1$$

Answer $a = 5, b = -1$

7



Show that $(n + 3)^2 - (n - 3)^2$ is a multiple of 12 for any whole number n .

$$n^2 + 6n + 9 - (n^2 - 6n + 9)$$

$$= 12n, \text{ which is } 12 \times n$$

Shown $12n$

8



Expand and simplify.

$$(3x^2 - x^{-1})^2$$

$$9x^4 - 3x - 3x + x^{-2}$$

$$3x^2 \times x^{-1} = 3x$$

Answer $9x^4 - 6x + x^{-2}$