

MATHSDIY

SOLUTIONS

GCSE TOPIC BOOKLET EXPANDING BRACKETS

Use **FOIL** first
outside
inside
last

$$\bullet (x-4)(x-5)$$

① ④ ③ ②

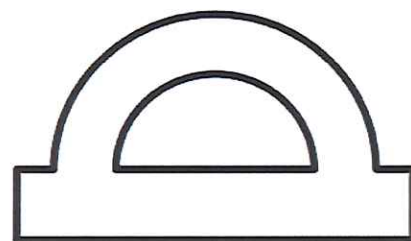
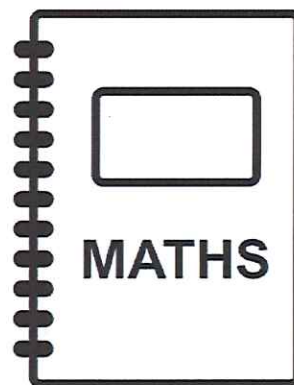
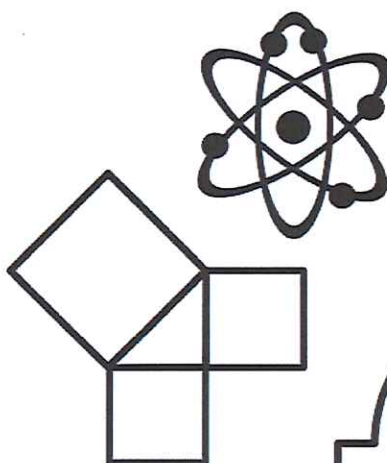
$$= x^2 - 5x - 4x + 20$$

$$= x^2 - 9x + 20$$

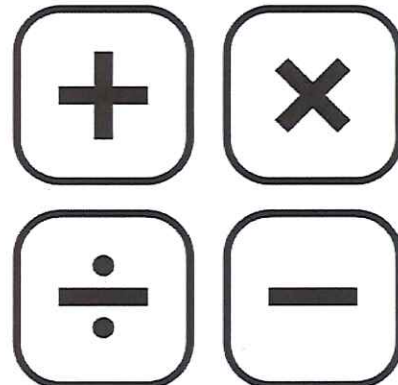
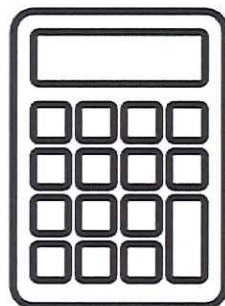
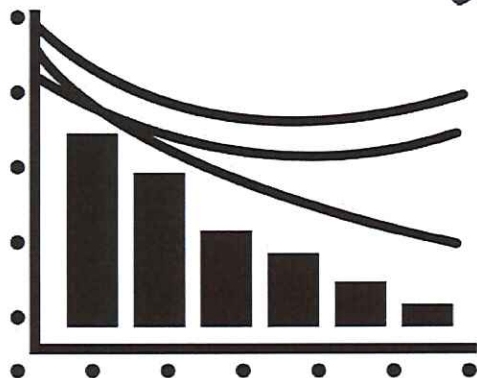
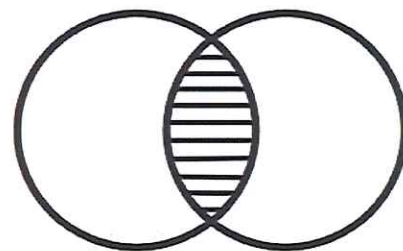
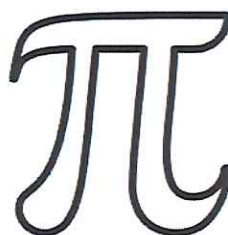
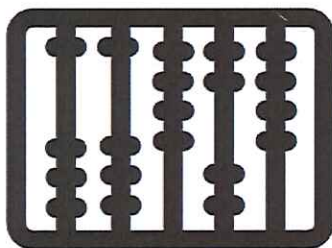
$$\bullet (3x-1)(4x+4)$$

① ④ ③ ②

$$= 12x^2 + 12x - 4x - 4$$
$$= 12x^2 + 8x - 4$$



$$a^2 = b^2 + c^2$$



1. Expand the following expression, simplifying your answer as far as possible.

$$(x-3)(x-4)$$

$$= x^2 - 4x - 3x + 12$$

$$= \underline{x^2 - 7x + 12}$$

(2)

2. Expand the following expression, simplifying your answer as far as possible.

$$(x+7)(x-3)$$

$$= x^2 - 3x + 7x - 21$$

$$= \underline{x^2 + 4x - 21}$$

(2)

3. Expand and simplify

$$(x+5)(x-6)$$

$$= x^2 - 6x + 5x - 30$$

$$= \underline{x^2 - x - 30}$$

(2)

4. Expand the following expression, simplifying your answer as far as possible.

$$(x-4)(x+7)$$

$$= x^2 + 7x - 4x - 28$$

$$= \underline{x^2 + 3x - 28}$$

(2)

5. Expand the following expression, simplifying your answer as far as possible.

$$(3x - 1)(5x + 2)$$

$$= 15x^2 + 6x - 5x - 2$$

$$= \underline{15x^2 + x - 2}$$

(3)

6. Expand the following expression, simplifying your answer as far as possible.

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

$$= 12x^2 + 8x - 6x - 4$$

$$= \underline{12x^2 + 2x - 4}$$

(3)

7. Expand the following expression, simplifying your answer as far as possible.

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

$$= 6x^2 + 9x - 8x - 12$$

$$= \underline{6x^2 + x - 12}$$

(3)

8. Expand

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

$$= (x - 3)(x - 3)$$

$$= x^2 - 3x - 3x + 9$$

$$= \underline{x^2 - 6x + 9}$$

(2)

9. Expand and simplify

$$(2x + 7)(3x - 1).$$

$$= 6x^2 - 2x + 21x - 7$$

$$= \underline{6x^2 + 19x - 7}$$

(3)

10. Simplify

$$(3x + 7y)(2x - 5y) + xy.$$

$$= 6x^2 - 15xy + 14xy - 35y^2 + xy$$

$$= \underline{6x^2 - 35y^2}$$

(3)

11. Show that

$(4x - 1)(6x + 5) - (8x - 1)(3x + 5)$ is identical to $-23x$.

$$(4x - 1)(6x + 5) - (8x - 1)(3x + 5)$$

$$= 24x^2 + 20x - 6x - 5 - [24x^2 + 40x - 3x - 5]$$

$$= 24x^2 + 14x - 5 - [24x^2 + 37x - 5]$$

$$= 24x^2 + 14x - 5 - 24x^2 - 37x + 5$$

really careful here with the signs.

$$= \underline{\underline{-23x}} \text{ as required}$$

(4)