Expand and simplify double brackets (coefficient of x = 1) (include $(x + a)^2$)

Maths

Mrs Dennett

Expand and simplify double brackets

1. Use the grid to help you expand and simplify

$$(x + 2)(x + 3)$$

×	x	+3
x		
+2		

$(x + 2)(x + 3) \equiv$ _____

2. Expand and simplify these expressions.

a) (f + 8)(f + 2)
b) (r + 7)(r – 3)
c) (t – 2)(t + 4)

3. Which expressions give the same result as (m + 5)(m – 4)?

(m – 4)(m + 5) (m + 4)(m – 5)
(4 – m)(m + 5) (5 + m)(m – 4)

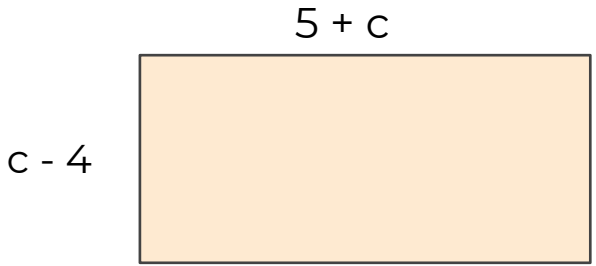
Expand and simplify double brackets

4. Ayda writes,

$$(x + 8)^2 \equiv x^2 + 64$$

Ayda is wrong.
Explain why.

5. Write an expression for the area of the rectangle.



6. a) Expand and simplify

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

$(x + 2)(x - 2)$

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

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

b) What do you notice?

c) Without any calculation, write down the expansion of

$(x + 10)(x - 10)$

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

Answers

Expand and simplify double brackets

1. Use a grid to help you expand and simplify:

$$(x + 2)(x + 3)$$

×	x	+3
x	x^2	$3x$
+2	$2x$	+6

$(x + 2)(x + 3) \equiv x^2 + 5x + 6$

2. Expand and simplify these expressions

a) $(f + 8)(f + 2)$ $\equiv f^2 + 10f + 16$

b) $(r + 7)(r - 3)$ $\equiv r^2 + 4r - 21$

c) $(t - 2)(t + 4)$ $\equiv t^2 + 2t - 8$

3) Which expressions give the same result as $(m + 5)(m - 4)$?

$(m - 4)(m + 5)$ $(m + 4)(m - 5)$

$(4 - m)(m + 5)$ $(5 + m)(m - 4)$

Expand and simplify double brackets

4. Ayda writes:

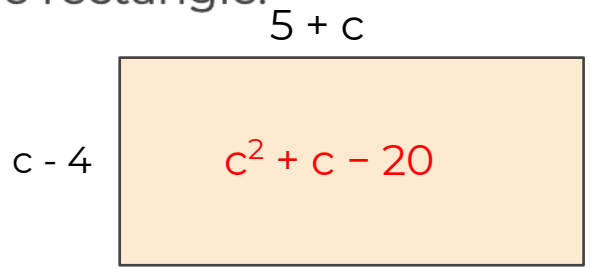
$$(x + 8)^2 \equiv x^2 + 64$$

Ayda is wrong.

Explain why.

$$(x + 8)(x + 8) = x^2 + 16x + 64$$

5. Write an expression for the area of the rectangle.



6. a) Expand and simplify

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

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

$(x + 3)(x - 3)$ $x^2 - 9$

$(x + 4)(x - 4)$ $x^2 - 16$

b) What do you notice?

All give expressions with two terms (a squared letter and number)

c) Without any calculation, write down the expansion of

$(x + 10)(x - 10)$ $x^2 - 100$

$(x + 7)(x - 7)$ $x^2 - 49$