Expanding quadratic products

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Expand $(x+3)(x+5)$. [2 marks]

$x^2+5x+3x+15=x^2+8x+15$.

Answer: $x^2+8x+15$

2. Expand $(x-6)(x+2)$. [2 marks]

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

Answer: $x^2-4x-12$

3. Expand $(2x+1)(x-4)$. [2 marks]

$2x^2-8x+x-4=2x^2-7x-4$.

Answer: $2x^2-7x-4$

4. Expand $(3x-2)^2$. [2 marks]

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

Answer: $9x^2-12x+4$

5. A rectangle has side lengths $(x+2)$ cm and $(x+5)$ cm. Write its area as an expanded expression. [3 marks]

Area is $(x+2)(x+5)=x^2+7x+10$.

The unit is square centimetres.

Answer: $(x^2+7x+10)$ cm^2

6. A student says $(x-4)(x+4)=x^2+16$. Explain the sign error and give the correct expansion. [3 marks]

The middle terms $4x$ and $-4x$ cancel.

The last product is $(-4)(4)=-16$.

Answer: x^2-16; the constant product is negative.