Special binomial products

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

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

$x^2+3x+3x+9=x^2+6x+9$.

Answer: x^2+6x+9

2. Expand $(x-7)^2$. [2 marks]

$x^2-7x-7x+49=x^2-14x+49$.

Answer: $x^2-14x+49$

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

$(2x)^2+2(2x)(1)+1^2=4x^2+4x+1$.

Answer: $4x^2+4x+1$

4. Expand $(x+8)(x-8)$. [2 marks]

The $8x$ and $-8x$ terms cancel.

Answer: x^2-64

5. Use a difference of squares to calculate 41×39. [3 marks]

$(40+1)(40-1)=40^2-1^2=1600-1$.

Answer: 1599

6. Explain why $(x+2)^2$ and $(x+2)(x-2)$ are different. [3 marks]

The first has equal signs, so the middle terms add.

The second has opposite signs, so the middle terms cancel.

Answer: x^2+4x+4 and x^2-4