Solving by factorisation

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $x^2 - 9x + 20 = 0$. [2 marks]

Factor $(x - 4)(x - 5) = 0$.

Use each factor.

Answer: $x = 4, 5$

2. Solve $2x^2 + 7x + 3 = 0$. [2 marks]

Factor $(2x + 1)(x + 3) = 0$.

Solve both equations.

Answer: $x = -3, -\frac{1}{2}$

3. Solve $x^2 = 7x$. [2 marks]

Rearrange and factor $x(x - 7) = 0$.

Keep both factors.

Answer: $x = 0, 7$

4. Solve $4x^2 - 25 = 0$. [2 marks]

Factor $(2x - 5)(2x + 5) = 0$.

Solve both factors.

Answer: $x = \pm\frac{5}{2}$

5. Solve $x^2 + 6x + 9 = 0$. [2 marks]

Factor $(x + 3)^2 = 0$.

There is one distinct root.

Answer: $x = -3$, repeated.

6. A rectangle has sides x cm and (x+2) cm and area 48 square centimetres. Find x. [3 marks]

Write $x(x + 2) = 48$, so $(x + 8)(x - 6) = 0$.

Reject the negative length -8.

Answer: $x = 6$ cm