Zero-product equations

6 questions | 16 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $(x-7)(x+1)=0$. [2 marks]

$x-7=0$ or $x+1=0$.

Answer: $x=7$ or $x=-1$

2. Solve $x^2+2x-15=0$. [2 marks]

$(x+5)(x-3)=0$.

Answer: $x=3$ or $x=-5$

3. Solve $2x^2-5x-3=0$. [3 marks]

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

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

4. Solve $x^2=6x$. [2 marks]

$x(x-6)=0$; do not divide by x.

Answer: $x=0$ or $x=6$

5. Solve $2(x-3)(x+1)=10$. [4 marks]

Divide by 2, expand and rearrange: $x^2-2x-8=0$.

$(x-4)(x+2)=0$.

Answer: $x=4$ or $x=-2$

6. A positive length x satisfies $x(x+3)=28$. Find x. [3 marks]

$x^2+3x-28=(x+7)(x-4)=0$.

The roots are -7 and 4. A positive length requires $x=4$.

Answer: $x=4$