Brackets and variables on both sides

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $2(x+3)=18$. [2 marks]

Divide by 2 to get $x+3=9$.

Subtract 3.

Answer: $x=6$.

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

Expand: $3x-3=2x+5$.

Subtract $2x$ and add 3.

Answer: $x=8$.

3. Solve $5(x+2)=3x+18$. [2 marks]

Expand, then subtract $3x$ and 10: $2x=8$.

Divide by 2.

Answer: $x=4$.

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

Expand to $4x-8=2x+6$.

Subtract $2x$, add 8 and divide by 2.

Answer: $x=7$.

5. Explain and correct the expansion $2(x+5)=2x+5$. [2 marks]

The outside factor acts on every term.

Both x and 5 must be doubled.

Answer: The correct expansion is $2x+10$.

6. Plan A costs AUD 8 plus AUD 3 per hour; B costs AUD 2 plus AUD 5 per hour. When are they equal? [3 marks]

Set $8+3h=2+5h$.

Subtract $3h$ and 2: $6=2h$, so $h=3$.

Answer: At 3 hours, both cost AUD 17.