One-variable inequalities and number-line solutions

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Write an inequality for x is at least 4. [2 marks]

At least includes the boundary.

Use greater than or equal to.

Answer: $x \geq 4$.

2. Solve $x - 5 < 2$. [2 marks]

Add 5 to both sides.

The sign does not change.

Answer: $x < 7$.

3. Solve $3x + 1 \leq 10$. [2 marks]

Subtract 1, then divide by positive 3.

The value 3 is included.

Answer: $x \leq 3$.

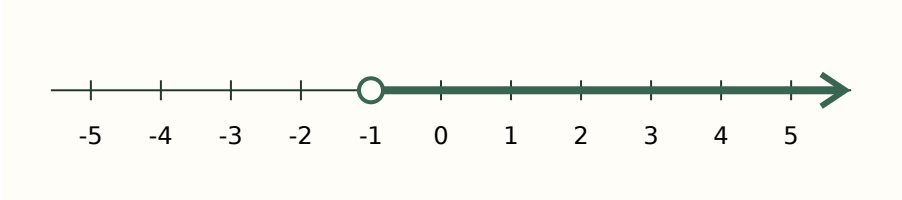
4. Solve $-2x \geq 8$. [2 marks]

Divide by -2 and reverse the direction.

Check the boundary gives 8.

Answer: $x \leq -4$.

5. Describe the supplied number line. [2 marks]



The open endpoint excludes -1.

The ray points to larger values.

Answer: $x > -1$.

6. Entry costs AUD 5 and each activity costs AUD 2. With at most AUD 17, what is the greatest whole number of activities? [3 marks]

Subtract 5 and divide by 2.

Activity counts are whole numbers.

Answer: $5 + 2a \leq 17$ gives at most 6 activities.