Linear inequalities: direction and endpoints

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Worked example 1

Solve the inequality.

$$3 - 2x \geq 7$$

Guided attempt 2

Solve the inequality.

$$2(x - 1) < x + 5$$

1. Expand $2(x - 1) < x + 5$ to $2x - \square < x + 5$.
2. Subtract x and add 2 on both sides: $x < 5 + \square$.
3. Thus $x < \square$; decide whether the boundary is included.

Prerequisite 3

Does x=3 satisfy $2x + 1 > 8$?

A. No; 7 is not greater than 8.

B. Yes; all positive x work.

Prerequisite 4

Start with −3<1. Multiplying both sides by −2 gives which true inequality?

A. $6 < -2$

B. $6 > -2$

Linear inequalities: direction and endpoints

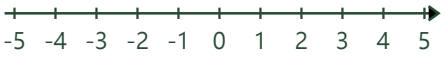
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Independent practice 5

Solve the inequality and show its solution on the blank number line.

$$-3x > 6$$



Use the stated conditions and the labelled scales.

Independent practice 6

Solve the inequality.

$$5x - 4 \leq 11$$

Independent practice 7

Solve the inequality.

$$\frac{x+1}{2} > \frac{x-2}{3}$$

Independent practice 8

Solve the inequality.

$$4 - 2(x+1) \geq x - 7$$

Exit question 9

Solve the inequality.

$$-x \leq 4$$

Exit question 10

For $x \leq 3$, which endpoint marking is correct?

A. A filled point at 3, extending left.

B. An open point at 3, extending left.

C. A filled point at 3, extending right.