Topic: Graphing inequalities on a number line

Question: Graph $x > 1$ on a number line.

Answer choices:

A

B

C

D

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Solution: A

Since the solution consists of all the numbers greater than 1, and "greater than" in the inequality $x > 1$ means "to the right of" on a number line, the ray we draw must start at 1 and extend out to the right. Since the solution does not include 1, we draw an open circle at 1.

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Topic: Graphing inequalities on a number line

Question: Graph $x < -2$ on a number line.

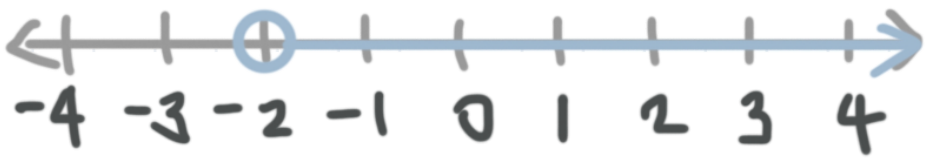
Answer choices:

A

B

C

D



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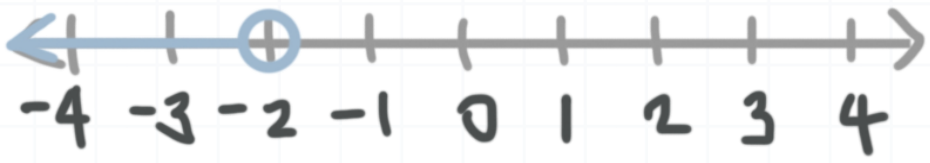
Solution: C

Since the solution consists of all the numbers less than -2, and "less than" in the inequality $x < -2$ means "to the left of" on a number line, the ray we draw must start at -2 and extend out to the left. Since the solution does not include -2, we draw an open circle at -2.



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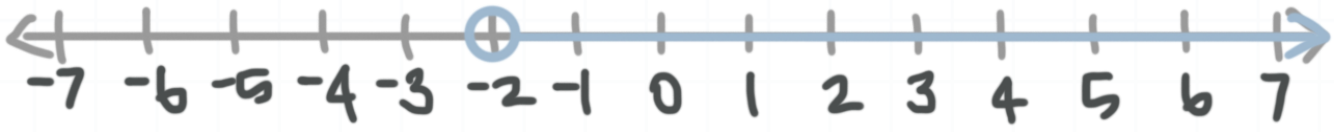
Topic: Graphing inequalities on a number line

Question: Graph $2x - 1 \not> x - 3$ on a number line.

Answer choices:

A

B



C

D

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Solution: A

Start simplifying the inequality by adding 1 to both sides.

$$2x - 1 \not> x - 3$$

$$2x - 1 + 1 \not> x - 3 + 1$$

$$2x \not> x - 2$$

Subtract x from both sides.

$$2x - x \not> x - 2 - x$$

$$x \not> -2$$

If x is not greater than -2, the Trichotomy Law tells us that is must be less than or equal to -2. Therefore, we can rewrite the solution as

$$x \leq -2$$

and a sketch of the inequality on a number line is

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