Bigger or Smaller?

IN01-V1 · storyboard · IN01 Read and write inequalities. Read each picture with its sentences.

Picture 1

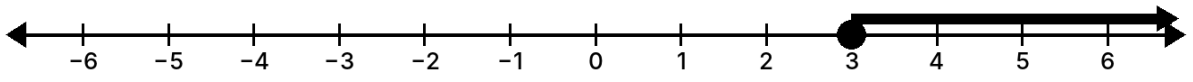
Write "x is at least 3" as an inequality, and draw it.

$$\boxed{x \geq 3}$$ at least: 3 is allowed

1. Write x is at least 3 as an inequality, and draw it.
2. At least 3 means 3 or more, so 3 itself is allowed: x is greater than or equal to 3.

Picture 2

$x \geq 3$



As an interval: $[3, +\infty)$

3. On the number line, put a closed circle at 3, because 3 is included, and shade to the right.
4. As an interval, that is a square bracket at 3, and a round bracket at infinity.

Picture 3

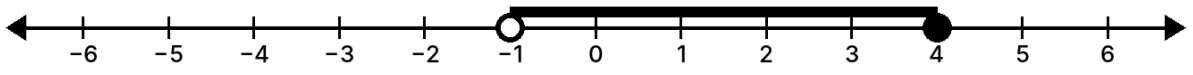
Write "x is more than -1 and at most 4" as one chain.

$$-1 < x \leq 4$$ the smaller number on the left

5. Now two conditions at once: x is more than negative 1, and at most 4.
6. Write it as one chain, with the smaller number on the left: negative 1 is less than x, which is less than or equal to 4.

Picture 4

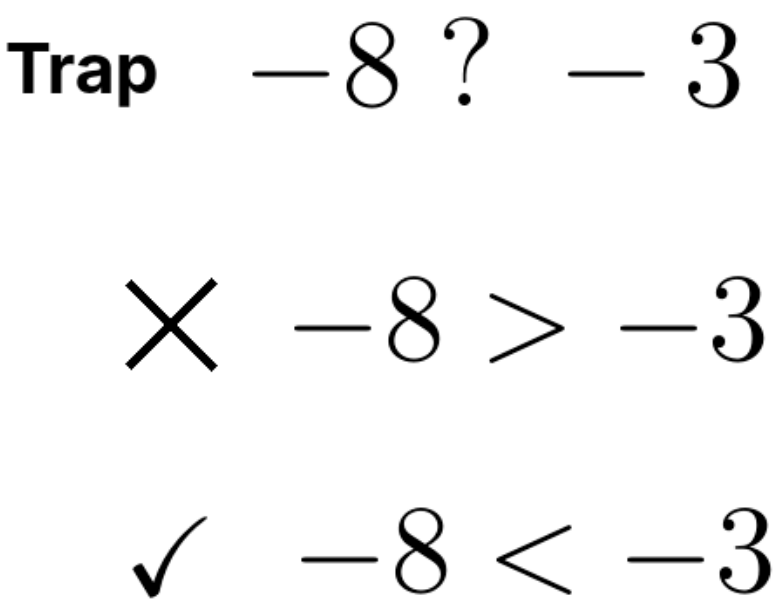
$-1 < x \leq 4$



As an interval: $(-1, 4]$

7. An open circle at negative 1, a closed circle at 4, and shade between them.
8. As an interval: a round bracket at negative 1, and a square bracket at 4.

Picture 5



9. Watch for the trap: negative 8 is not bigger than negative 3.
10. On the number line it is further left, so it is smaller: negative 8 is less than negative 3.

Picture 6

Trap $x \geq -2$

$\times \ (-2, +\infty)$

$\checkmark \ [-2, +\infty)$

11. Another trap: x at least negative 2 includes negative 2, so it needs a square bracket there.
12. Infinity always gets a round bracket.