Name _____ Date _____

Double Inequalities and Systems of Inequalities

Example

$-3 < 2x + 1 \leq 7 \mid -1$

$-4 < 2x \leq 6 \mid \div 2$

$-2 < x \leq 3$

$x \in (-2, 3]$

Remember

We solve a **double inequality** by doing the same to all three parts. **A system of inequalities**: solve each inequality on its own; the solution of the system is the numbers that satisfy both, that is, the **intersection** of the solutions.

1 ON YOUR OWN Solve and write as an interval.

$1 \leq 3x - 2 < 10 \rightarrow$ ☐

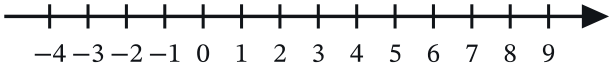
$-5 < 1 - 2x \leq 3 \rightarrow$ ☐

$0 \leq \frac{x + 2}{3} \leq 2 \rightarrow$ ☐

2 ON YOUR OWN **A system.** Solve both inequalities, show them on the same line and read off the intersection.

$x - 1 > 2$

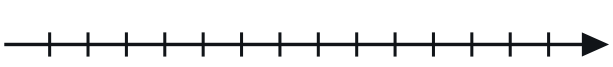
$2x \leq 14$



☐

$3x + 2 \geq -4$

$5 - x > 1$



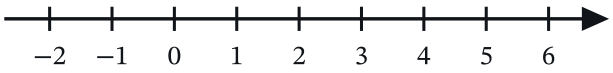
☐

Names (pair) _____ Date _____

3 IN PAIRS Does the system have a solution? Explain with a picture on the line.

$2x - 1 > 5$

$x + 4 < 6$



→ ☐

4 ON YOUR OWN Solve.

$-1 \leq \frac{3-x}{2} < 2$ → ☐

5 IN PAIRS **Phone plans.** Plan A: 10 € a month plus 0.05 € per minute. Plan B: 18 € a month however many minutes. For how many minutes a month is plan A cheaper?

Inequality: ☐ → ☐

6 IN PAIRS Make up a system of two inequalities whose solution is $[1, 5)$.

The Number Line app · otooly.com/number-line

Intervals mode: type both inequalities separated by a semicolon and choose **Intersection**.

★ ON YOUR OWN **Exit card.** $-1 < 2x + 3 < 7$ → ☐