

# Writing an INEQUALITY

An **inequality** is a mathematical sentence that compares expressions. It contains the symbols  $<$ ,  $>$ ,  $\leq$ , or  $\geq$ .

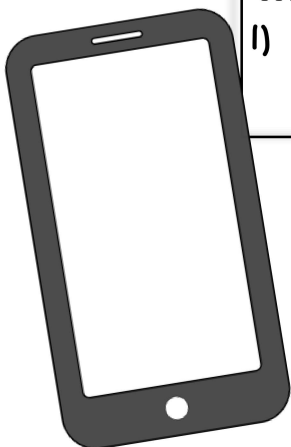
A **solution of an inequality** is a value that makes the inequality true.

## INEQUALITY SYMBOLS

SYMBOL	$<$	$>$	$\leq$	$\geq$
KEY PHRASES	<ul style="list-style-type: none"> <li>• less than</li> <li>• fewer than</li> </ul>	<ul style="list-style-type: none"> <li>• greater than</li> <li>• more than</li> </ul>	<ul style="list-style-type: none"> <li>• less than or equal to</li> <li>• at most</li> <li>• no more than</li> </ul>	<ul style="list-style-type: none"> <li>• greater than or equal to</li> <li>• at least</li> <li>• no less than</li> </ul>

Write the word sentence as an inequality.

- 1) A number  $x$  is at most  $-10$ .  $\rightarrow x \leq -10$
- 2) Four times a number  $b$  is greater than  $-4.7$ .  $\rightarrow 4b > -4.7$



**WORD PROBLEM**

You have at most 25 games on your smart phone. Write an inequality that represents this situation.

$$g \leq 25$$

**PRACTICE** Write the word sentence as an inequality.

- 1 A number  $y$  is no more than  $-8$ .

$$y \leq -8$$

- 2 A number  $b$  minus  $4.2$  is less than  $-7.5$ .

$$b - 4.2 < -7.5$$

- 3 A number  $t$  multiplied by  $-4$  is at least  $-\frac{2}{5}$ .

$$-4t \geq -\frac{2}{5}$$

# Graphing an INEQUALITY

The graph of an inequality shows all the solutions of the inequality on a number line.

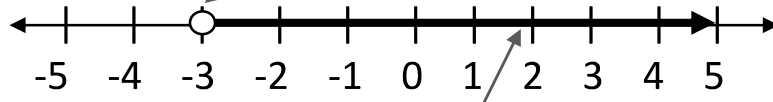
An **OPEN** circle  $\circ$  is used when a number is *not* a solution.

A **CLOSED** circle  $\bullet$  is used when a number is a solution.

An arrow to the left or right shows that the graph continues in that direction.

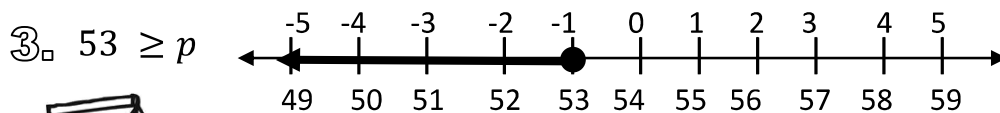
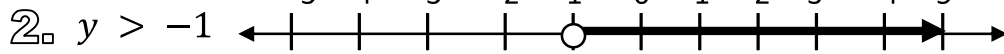
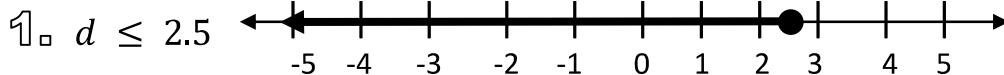
Graph  $y > -3$ .

Use an open circle because  $-3$  is not a solution.



Shade the number line to the right to show the solution is all numbers greater than  $-3$ .

## PRACTICE Graph the inequality on a number line.



### WORD

### PROBLEM

Each day, at least 75 students buy milk from the cafeteria. Write and graph an inequality that represents this situation

