

Sec. 3.1 Inequalities and Their Graphs

Vocabulary

- solution of an inequality: any number that makes the inequality true

Problem 1:

What inequality represents the verbal expression?

a. all real numbers x that are less than or equal to 5.

$$x \leq 5$$

b. 4 less than a number is greater than 10

$$x - 4 > 10$$

Problem 2:

Is each number a solution of $3x - 2 < -1$?

a. 4 $3(4) - 2 < -1$

NO $12 - 2 < -1$

$10 < -1$ False

YES

b. -3

$3(-3) - 2 < -1$ True $-9 - 2 < -1$
 $-11 < -1$

Problem 3:

What is the graph of

a. $4 \geq b$

$4 > b$ or $4 \geq b$
 $b < 4$

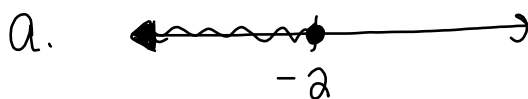


b. $a > 3$



Problem 4:

What inequality represents the graph?



$a \leq -2$

$-2 \geq a$

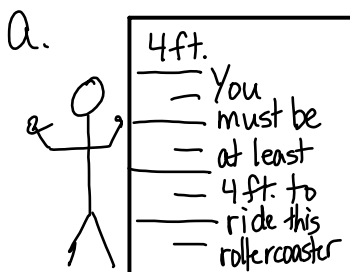


$1 < b$

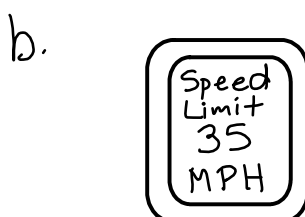
$b > 1$

Problem 5:

What inequality describes each situation?
Be sure to define a variable.



Let x be the height in feet. The sign indicates that $x \geq 4$.



Let x be the speed in miles per hour. The sign indicates that $x \leq 35$.