

9.1 Representing Inequalities

Inequality symbols ($>$, $<$, \geq , \leq) are used to show two things are not equal.

$a > b$ \rightarrow a is greater than b

$a < b$ \rightarrow a is less than b

$a \geq b$ \rightarrow a is greater than or equal to b

$a \leq b$ \rightarrow a is less than or equal to b

$a \neq b$ \rightarrow a does not equal b .

Ex 1: Representing Inequalities

Reema earns overtime when she works more than 40 h/week.

a) Give 4 possible values that would result in overtime pay.

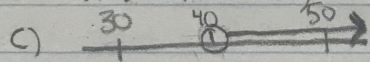
b) Express the inequality algebraically and graphically.

c) Express the inequality graphically.

d) Express the time that does not qualify for overtime algebraically and graphically.

a) 41, 40.5, 50, 47

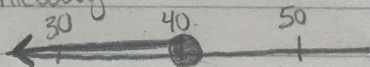
b) $x > 40$ $40 < x$



○ - open \rightarrow does not include boundary
● - closed \rightarrow includes boundary

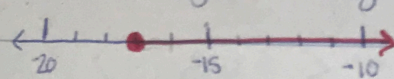
d) Algebraically: $x \leq 40$, $40 \geq x$

Graphically:



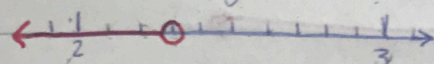
Ex 2: Express Inequalities

a) Express Algebraically



$$-17 \leq x, \quad x \geq -17$$

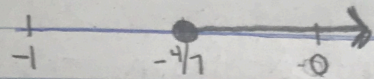
b) Express Algebraically



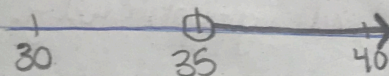
$$2\frac{3}{10} > x, \quad x < 2\frac{3}{10}$$

$$2.3 > x, \quad x < 2.3$$

c) Express $x \geq -\frac{4}{7}$ graphically.

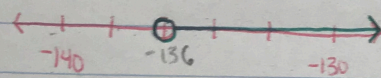


d) Express $35 < n$ graphically.



9K2

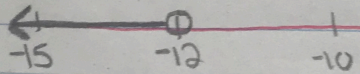
a) Express Algebraically



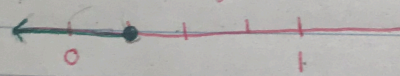
$$-136 < x$$

$$x > -136$$

b) Express $n < -12$ graphically



c) Express Algebraically



$$\frac{1}{4} \geq x, \quad x \leq \frac{1}{4}$$

$$0.25 \geq x, \quad x \leq 0.25$$

d) Express $-7 \geq x$ graphically.



54K1:

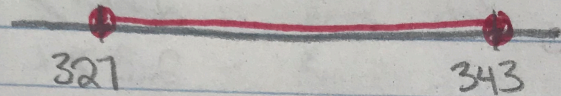
You must be 16 to get a driver's license.

a) Express Algebraically.

b) Express Graphically.

Ex. 3 Represent a Combination of Inequalities
Average Daily Water use from 327 L to
343 L per person.

$$327 \text{ L} \leq x \leq 343 \text{ L}$$



SYK 3:

The temperature increased from -19°C to 22°C in one hour. Express this change both algebraically and graphically.