

An inequality is 'like' an equation, but uses symbols such as

$>$ ,  $<$ ,  $\geq$ , and  $\leq$

$>$	means greater than
$<$	means less than
$\geq$	greater than = to
$\leq$	less than or = to

Shane wished to purchase a cell phone plan. The plan had an activation fee of \$20 plus \$0.50/minute. He had a maximum of \$24 to spend.

Inequality

$$20 + 0.50 \times \# \text{ of minutes} \leq 24$$

Solve  $20 + 0.50m \leq 24$  \* just like an equ'n

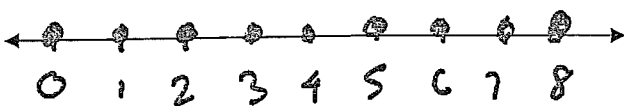
$$0.50m \leq 4$$

$$\frac{0.50m}{0.50} \leq \frac{4}{0.50}$$

$$m \leq 8$$

\* m is less than or = 8

Graph



Inequalities can be graphed for different set of numbers...

- Natural numbers (N) } 1, 2, 3... use dots ...
- Whole Numbers (W) } 0, 1, 2, 3... use dots ...
- Integers (I) } ... -3, -2, -1, 0, 1, 2, 3... ...

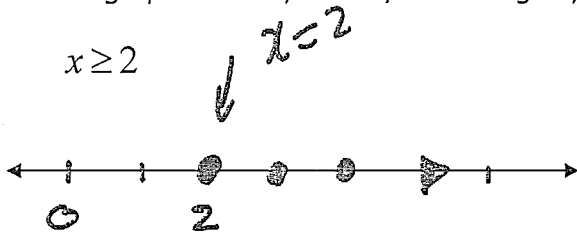
Rational numbers (Q)

any fraction or decimal

use bar (line with arrow)

To graph Natural, Whole, and Integers, USE DOTS

$$x \geq 2$$



$x \geq 2$  means  
 $x > 2$  or  $x = 2$

To graph Rational numbers, USE AN ARROW

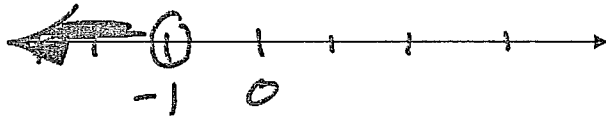
$$x \geq 2$$



$$x < -1$$

Rational's

hollow circle means  
not = to

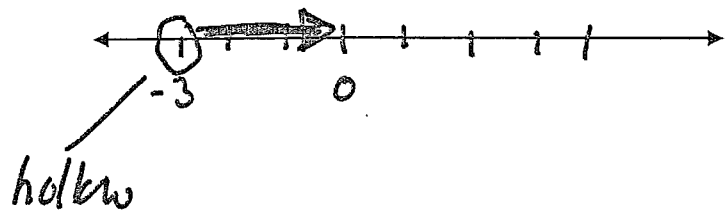
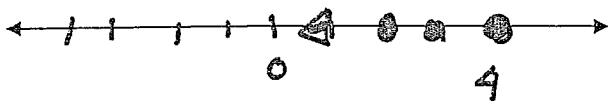


Practice: Graph and label

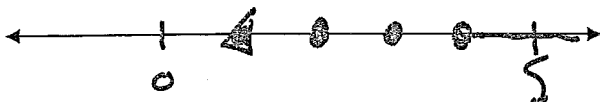
$$x \leq 4, x \text{ is an integer}$$

dots

$$x > -3, x \text{ is a rational number}$$

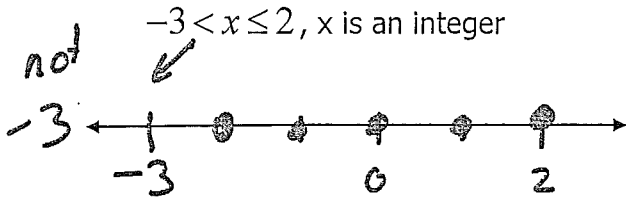


$$x < 5, x \text{ is an integer}$$

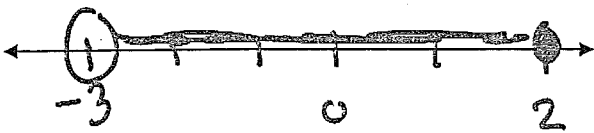


An inequality can have 2 'endpoints'

$-3 < x \leq 2$  means  
 $x > -3$  and  $x \leq 2$

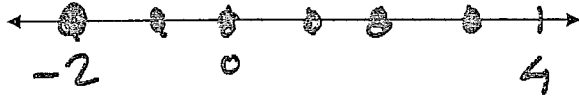


$-3 < x \leq 2$ , x is a Rational number



Practice: Graph

$-2 \leq x < 4$ , x is an integer



~~Is this correct?~~

$0 < x \leq 4$ , x is a Rational number

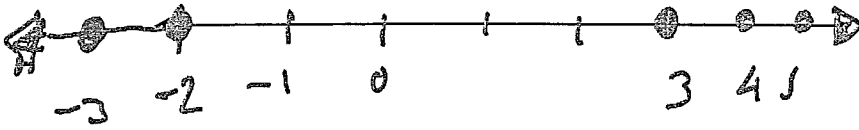


Write 2 possible inequalities for the following. x is an integer

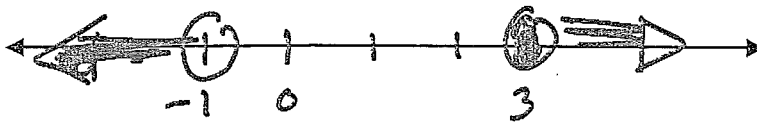




Graph  $x < -1$  or  $x \geq 3$ ,  $x$  is an integer



Now graph  $x < -1$  or  $x \geq 3$ ,  $x$  is a rational number



~~G/W p. 251 # 1, 2, 4, 5, 6~~

Homework Q's:

pg 254 1, 3, 4, 6, 9, 16