

1.3

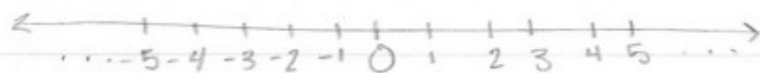
There are many different sets of numbers, some are

name	Description	Ex.
Natural #s	1, 2, 3, 4, 5, 6, 7, ... used for counting	
Whole #s	0, 1, 2, 3, 4, 5, ... the natural #s with zero	
Integers	..., -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, ... the whole #s with the negatives	It's 10° below = -10° It's 20° above = 20°
Rational #s	Any # that can be written as a fraction when decimals, either terminate or repeat	$\frac{2}{3}$, $8 = \frac{8}{1}$, $\frac{1}{11} = .0909$ $\frac{1}{3} = .333$, $\frac{1}{2} = .5$
Irrational #s	Any # that goes on forever and doesn't repeat itself	$\pi \approx 3.141592654$ $\sqrt{2} \approx 1.414213562...$

All of these #s make up the real numbers

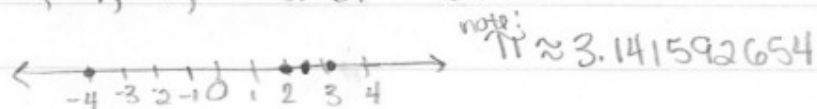
Real #s - any # you can think of (probably)

We graph the real #s on a number line



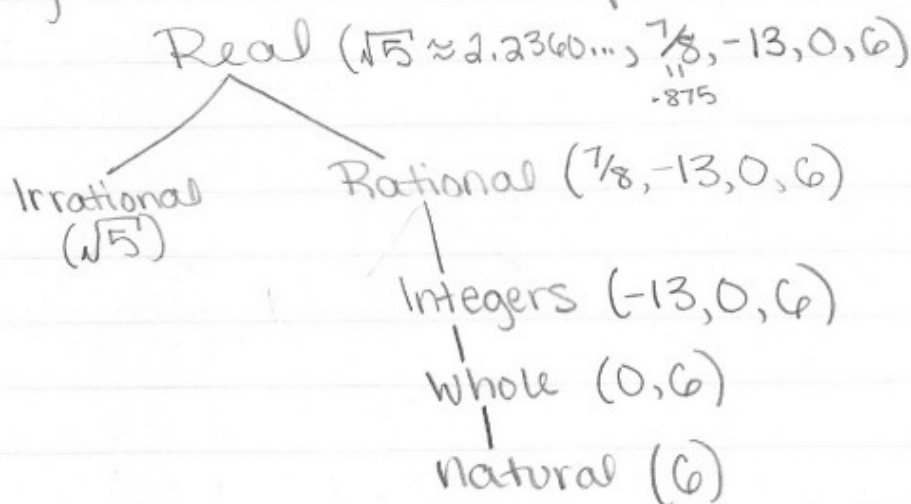
to graph ^{real} numbers we use dots

Ⓧ graph π , -4, 2, and 2.5 on a #-line



We also classify real #'s into natural, whole, integers, rational, irrational

note: many #'s fall into multiple sets.



So notice: 6 is a natural #, a whole #, an integer, a rational #, and a real #.

Ordering the Real #'s

On the #-line the #'s increase from left to right, we use this to order them (that is to decide which ones are bigger or smaller)

(ex) $\leftarrow \begin{array}{cccc} 0 & 1 & 2 & 3 & 4 \end{array} \rightarrow$ Since 4 is to the right of 3 we know that 4 is bigger than 3 we say 4 is greater than 3 and write $4 > 3$.

Inequality Symbols

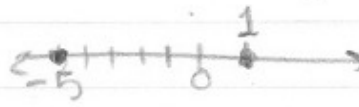
$>$ greater than

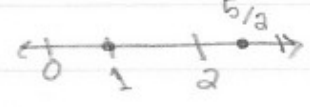
$<$ less than

\geq greater than or equal to

\leq less "

- (ex) $2 < 5$ says "2 is less than 5" (true)
 $2 > 5$ says "2 is greater than 5" (false)
 $3 < 3$ says "3 is less than 3" (false)
 $3 \leq 3$ says "3 is less than or equal to 3" (true)
 $6 \geq 0$ says "6 is greater than or equal to 0" (true)

(ex) $-5 < 1$ true since  -5 is to left of 1 so -5 is smaller.

$\frac{5}{2} \leq 1$ false since $\frac{5}{2} = 2.5$  $\frac{5}{2}$ is to right of 1 so $\frac{5}{2}$ is bigger.

to find
the

Absolute Value (denoted $|a \text{ number}|$)

technically, $|a| =$ distance between 0 and a on the #-line.

(to find it, if the number is negative, drop the negative sign. Otherwise don't do anything to the #.)

- (ex) $|-17| = 17$ $|5| = 5$ $|-1.2734| = 1.2734$
 $|0| = 0$ $|\frac{3}{4}| = \frac{3}{4}$