

Real Numbers & the Number Line

- ① Classify numbers and graph them on a number line.
- ② Determine which of two numbers is smaller.
- ③ Find additive inverses and absolute values.
- ④ Interpret meanings from tables.

① Classify Numbers (Real #'s)

Natural Numbers = $\{1, 2, 3, 4, \dots\}$
(counting)

Whole Numbers = $\{0, 1, 2, 3, 4, \dots\}$

Integers = $\{\dots, -3, -2, -1, 0, 1, 2, \dots\}$

Rational Numbers = $\left\{ \frac{p}{q} \mid p \text{ and } q \text{ are integers, } q \neq 0 \right\}$

$$\frac{2}{4} = \frac{1}{2}, \quad \frac{3}{1} = 3$$

Irrational Numbers = $\left\{ \text{numbers that are not rational} \right\}$

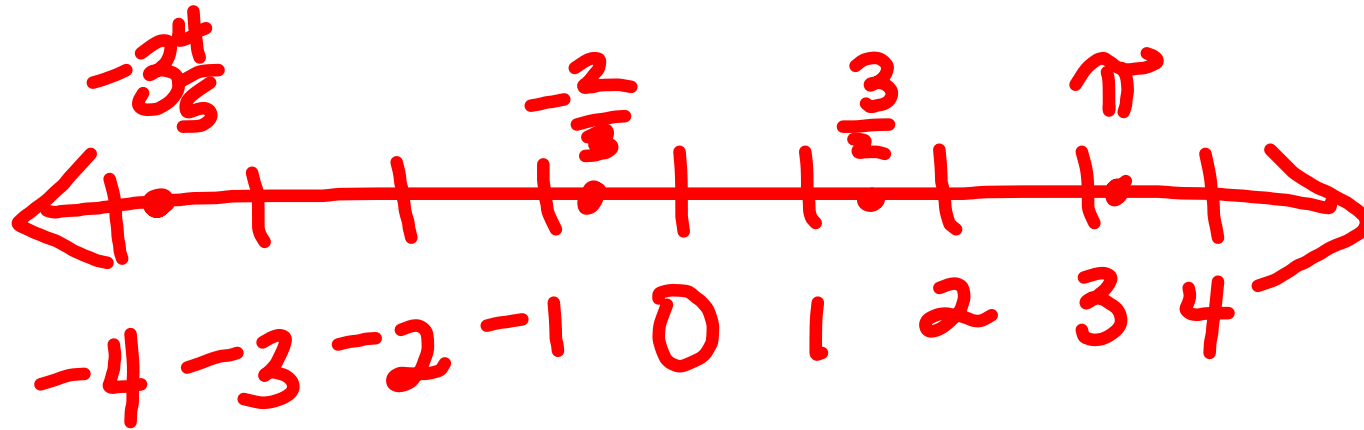
non-terminating
no blocks of repeating
digits

$$\pi \approx 3.14, \quad \sqrt{2} \approx 1.4, \quad \sqrt{7} \approx 2.65 \leftarrow \text{approx.}$$

Example

3, Online Homework

Number Line



$$\frac{3}{2} = 1.5$$

π

$$-\frac{2}{3} = -\overline{.6}$$

→ values increase

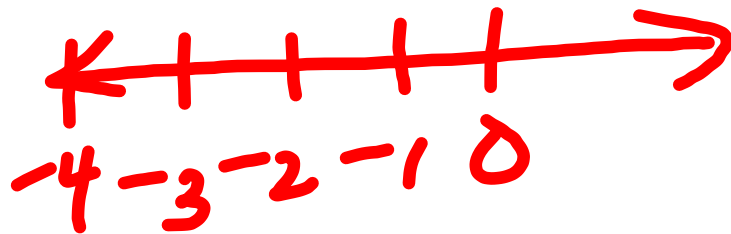
$$-3\frac{4}{5}$$

② Compare two numbers
location on a # line

$$-3 > -4$$

$$\frac{1}{2} = .5 > \frac{1}{3} = .\overline{3}$$

< less than
> greater than

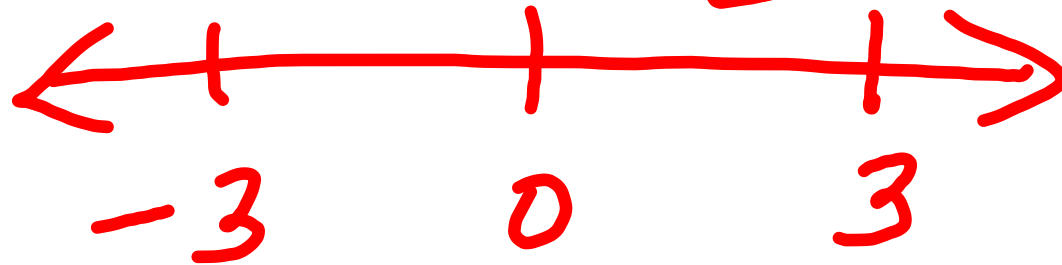


↑
← smaller

③ Additive Inverses (opposite)

$$-(-5) = 5$$

$$\boxed{-(-a) = a}$$



3 & -3 are opposites.

$$-(3) = -3$$

opp of a
pos. = neg.

$$-(-3) = 3$$

opp. of a
neg. = pos.

Absolute Value -

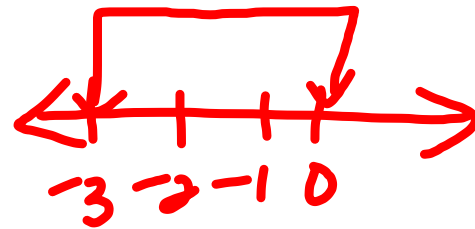
distance from zero
(positive or zero)

$$|-3| = 3$$

$$|3| = 3$$

$$|-10| = 10$$

$$|0| = 0$$



positive

$$|-5| = -(5) = -5$$

④ Interpret

Ex. # 24 ÷ 25 Online
Homework