

S-A2 Algebra 2 Session 1

"opposite" → sign change

opposite of 3 → -3

opposite of -8 → 8

opposite reciprocal
 $\frac{8}{9} \rightarrow -\frac{8}{9} \rightarrow \left(-\frac{9}{8}\right)$

Opposite reciprocal
 1.) $\frac{3}{5} \xrightarrow{\text{change sign}} -\frac{3}{5} \xrightarrow{\text{flip}} -\frac{5}{3}$

2.) $-2.4 \rightarrow 2.4 \rightarrow \frac{1}{2.4}$

3.) $2\frac{1}{4} \rightarrow -2\frac{1}{4} \rightarrow -\frac{9}{4} \rightarrow \left(-\frac{4}{9}\right)$

4.) $\pi + 2 \rightarrow -\pi - 2 \rightarrow \left(\frac{1}{-\pi - 2}\right) \cong \left(\frac{-1}{\pi + 2}\right)$

"reciprocal" → inverse "flip"

reciprocal of $\frac{3}{4} \rightarrow \frac{4}{3}$

reciprocal of $\frac{7}{1} \rightarrow \frac{1}{7}$

reciprocal of $\frac{1}{3} \rightarrow \frac{3}{1} = 3$

reciprocal of $\frac{0}{1} \rightarrow \frac{1}{0}$
undefined

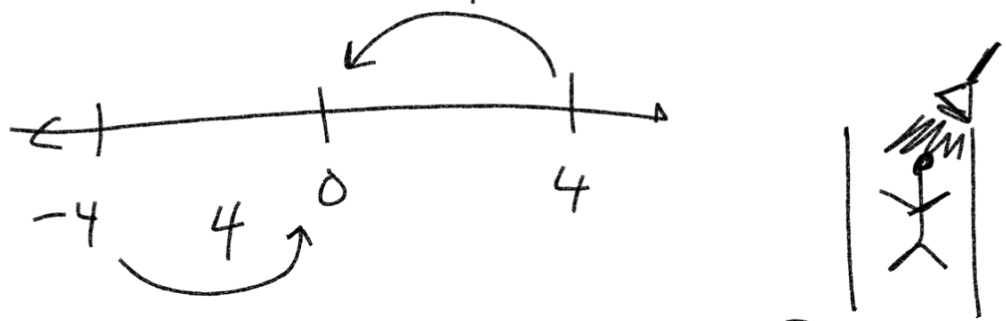
$2.4 = 2\frac{4}{10} = \frac{20}{10} + \frac{4}{10} = \frac{24}{10} = \frac{12}{5}$

$\left(\frac{5}{12}\right)$

$2\frac{1}{4} \xrightarrow{\text{mixed number}} \frac{(2 \cdot 4) + 1}{4} = \frac{9}{4}$
 mixed number → improper fraction

Absolute Value $|4| = 4$ $|-4| = 4$

Absolute value is the distance from the number to zero on the number line



$$|-3| = 3$$

$$-|7| = -7$$



$$|(4-12)| = |-8| = \textcircled{8}$$

$$|5| - |-6| =$$

$$5 - 6 = \textcircled{-1}$$

Real Numbers

rational numbers irrational numbers

Imaginary Numbers

rational \rightarrow can be put into a fraction.

ratio \rightarrow fraction

Rational Numbers (put into a fraction)

Irrational numbers → cannot be put into a fraction.

Rational Numbers

Counting Number - 1, 2, 3, 4, 5...

Whole Number - 0, 1, 2, 3, 4, 5...

all counting and zero

integer - all whole numbers and their opposites

... -3, -2, -1, 0, 1, 2, 3, 4, 5...

0.45 terminal decimal $\frac{45}{100} = \frac{9}{20}$ Rational

0.4444... = $\frac{4}{9}$ single repeating decimal Rational

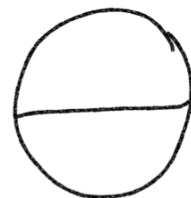
0.234234234... = $\frac{234}{999}$ repeating decimal rational

0.124444... = 0.124 rational - repeating decimal

0.1234567... irrational

$\pi = 3.141592...$
irrational

$$c = \pi d$$
$$\pi = \frac{c}{d}$$



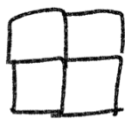
of times diameter wraps around circumference

Rational Number

Perfect Square $\sqrt{36} = \pm 6$

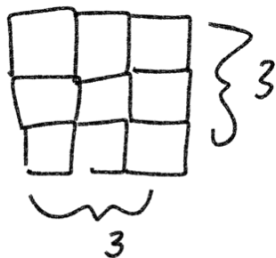


1



4

$$\sqrt{4} = 2$$



9

$$\sqrt{9} = 3$$

Consecutive
odd
numbers

$$\sqrt{0} = 0$$

$$\sqrt{1} = 1$$

$$\sqrt{4} = 2$$

$$\sqrt{9} = 3$$

$$\sqrt{16} = 4$$

$$\sqrt{25} = 5$$

$$\sqrt{36} = 6$$

$$\sqrt{49} = 7$$

$$\sqrt{64} = 8$$

$\sqrt{40}$ not a perfect square
irrational

- 1.) 4 Rational counting, whole, integer
- 2.) -7 Rational, integer
- 3.) 0.8888... Rational, repeating
- 4.) 0.143143 \square rational terminal
- 5.) 0.347348... irrational
- 6.) 0.428428... rational, repeating
- 7.) $\sqrt{81}$ rational perfect square
- 8.) $\sqrt{200}$ irrational

