




Lesson 8.3 → Introduction to Irrational Numbers

What is a number?

 1, 2, 3 ... Natural Numbers

 1.5, $2\frac{1}{3}$, $3.\overline{6}$... Decimals & Fractions

 -2, -1, 0, 1, 2 ... Integers

 $-2.\overline{3}$, -1.4, $-\frac{3}{7}$... Negative
Decimals & Fractions
in
Seventh Grade

→ All of the above are Rational numbers

→ All have a certain place on number line

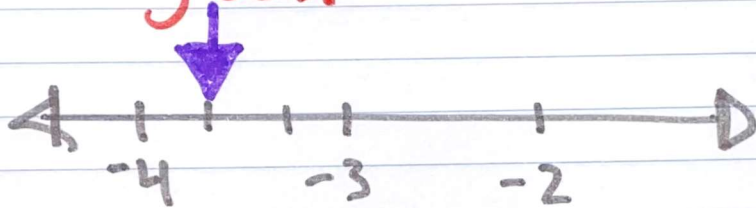
→ All can be written as $\frac{\text{integer}}{\text{integer}}$

Think about it!

$$-3.\overline{6} \text{ or } -3.6666\dots \text{ or } -3\frac{2}{3}$$

Does it have a certain place on number line?

YES!!



Can it be written as $\frac{\text{integer}}{\text{integer}}$?

$$-3\frac{2}{3} \text{ or } -\frac{11}{3} \quad \text{Yes!!}$$

So what are **Irrational** numbers?

- numbers with decimal expansions that neither repeat nor terminate

3 Classic Examples!

→ π or 3.1415....

→ $\sqrt[3]{10}$ or 2.1544....

→ square roots of non-perfect squares, such as

$\sqrt{10}$ or 3.1623....

Both keep going forever with no pattern, both have no certain place on the number line!