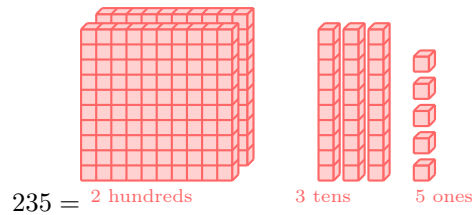


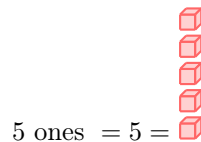
DECIMAL NUMBERS

A DEFINITION

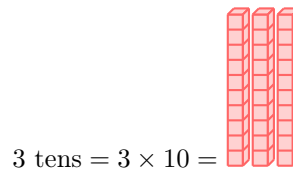
Discover: When we write numbers, the place of each digit is very important. Look at the number:



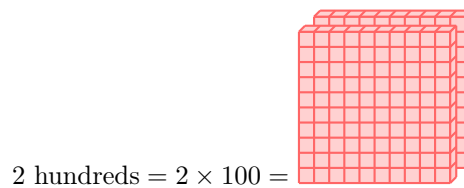
- The **5** is in the **Ones** place. That means we have 5 ones:



- The **3** is in the **Tens** place. That means we have 3 tens:

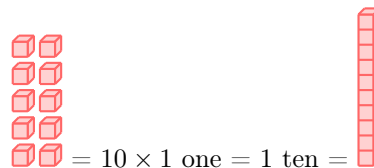


- The **2** is in the **Hundreds** place. That means we have 2 hundreds:

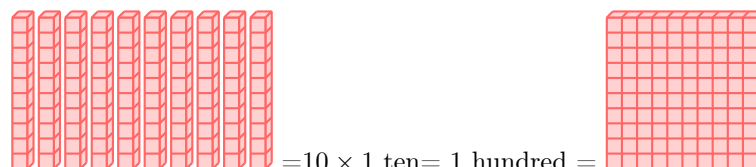


When we move to the left $\leftarrow$, each place is 10 times bigger:

- 10 ones makes 1 ten:



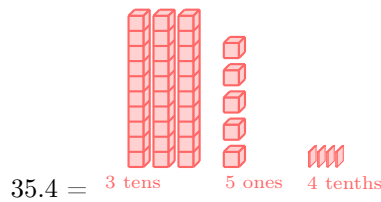
- 10 tens make 1 hundred:



When we move to the right $\rightarrow$, each place is 10 times smaller:

- $1 \text{ hundred} \div 10 = 1 \text{ ten}$
- $1 \text{ ten} \div 10 = 1 \text{ one}$

What if we continue past the Ones place? If we divide one  by 10, we get a **tenth** which is written as $\frac{1}{10}$ or . To show where the Ones place is, we use a decimal point:



Definition Decimal Number

A **decimal number** is a number that has a decimal point. The decimal point separates the whole number part from the part that is smaller than one. We can write a decimal number in different ways:

- **Numerical form** (how we usually write it):

35.4

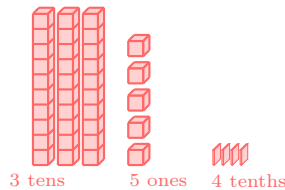
- **Expanded form** :

$$\begin{array}{rcl}
 3 \text{ tens} + & 5 \text{ ones} + & 4 \text{ tenths} \\
 30 + & 5 + & \frac{4}{10} \\
 3 \times 10 + & 5 \times 1 + & 4 \times \frac{1}{10}
 \end{array}$$

- **Table:**

Tens	Ones	.	Tenths	3
------	------	---	--------	---

- **Blocks:**

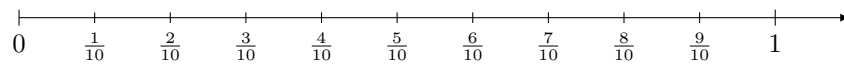


B ON THE NUMBER LINE

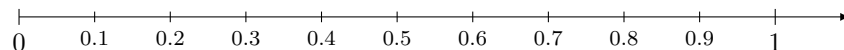
Discover: Decimal numbers, like fractions, can be shown on a number line. A number line helps us see where the numbers go.

- **Showing Tenths on a Number Line**

– Imagine we cut the space between 0 and 1 into 10 equal parts. Each part is called one tenth, or $\frac{1}{10}$.

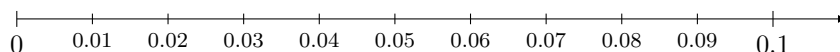


– Since $\frac{1}{10} = 0.1$, we can write the number line like this:



- **Showing Hundredths on a Number Line**

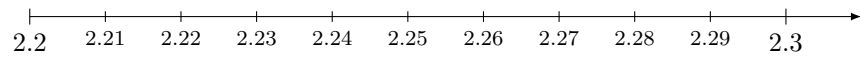
Now, let's zoom in and cut the line between 0 and 0.1 into 10 equal parts. Each tiny part is called one hundredth, or 0.01.



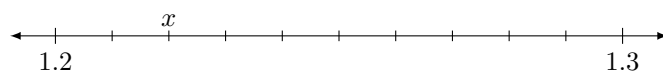
Method How to Draw a Number Line for a Decimal Number

Here's how to put a decimal number on a number line:

1. **Choose your range:** If your numbers are between 2.2 and 2.3, your number line starts at 2.2 and ends at 2.3.
2. **Divide into ten equal parts:** On a number line from 2.2 to 2.3, the first mark is 2.21, the second is 2.22, and so on, until you get to 2.30 (which is the same as 2.3).

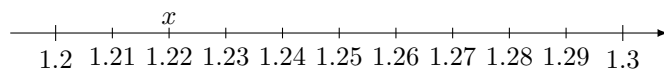


Ex: Find the value of x .



Answer:

- Each small division on the number line shows 0.01.



- So, $x = 1.22$