

ADDITION AND SUBTRACTION

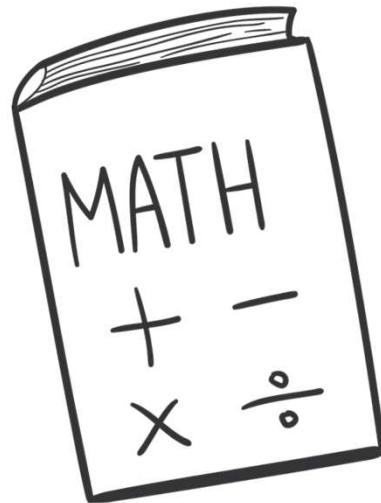
NUMBER LINE SUBTRACTION

LESSON 6

TODAY'S OBJECTIVE

Today, we will subtract 3-digit numbers by counting-up on a number line.

TAKE OUT YOUR **MATH JOURNALS**





WATCH ME FIRST



Today we are going to use number lines to subtract.

$$\begin{array}{r} 450 \\ - 172 \\ \hline \end{array}$$

Let's do a quick review first!



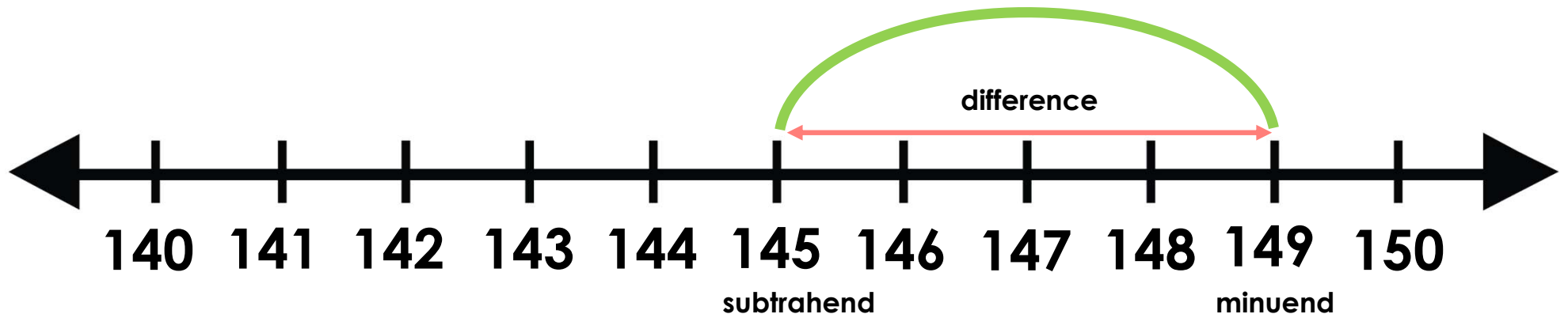
Did You Know?

We can find the difference between two numbers by counting up on a number line.

EXAMPLE: What is $149 - 145$?

$149 - 145 = ?$ is the same as $145 + ? = 149$.

Start with the subtrahend and count up to the minuend to find the difference.





To solve, I'll first rearrange the equation to make it an unknown addend problem to reflect counting up.

$$450 - 172 = ?$$

is the same as

$$172 + ? = 450$$

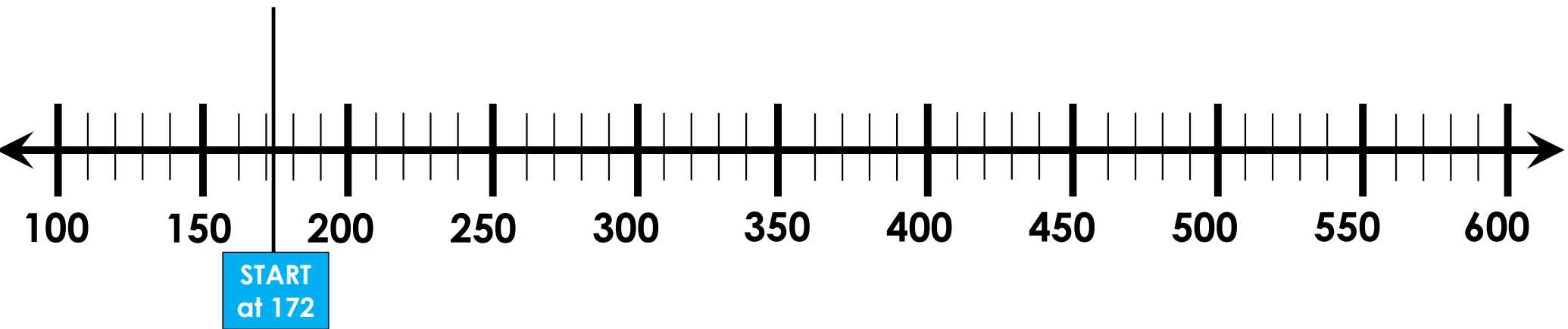
This is what I'm looking for!





Now, I'll plot 172 on the number line as my starting point to count up.

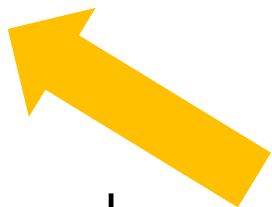
$$450 - 172 = ?$$
$$172 + ? = 450$$



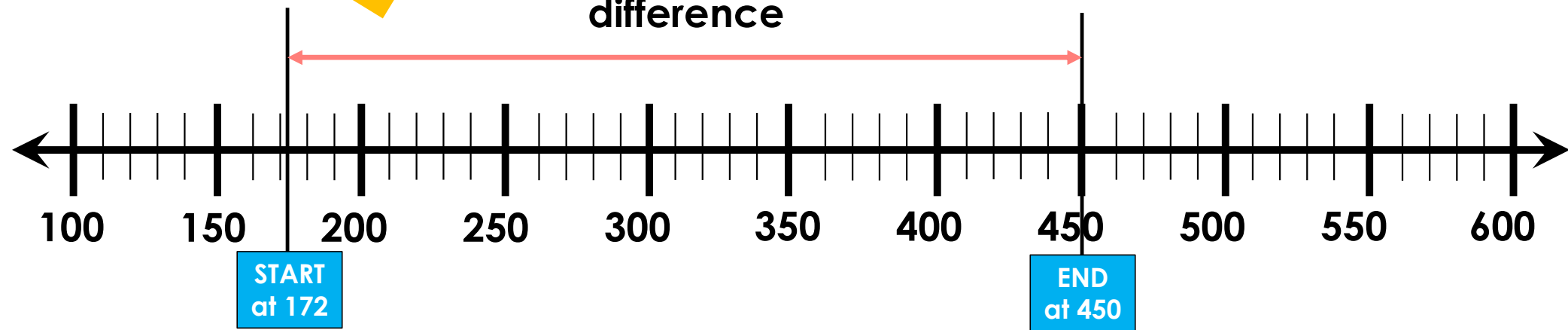


Next, I'll plot 450. This is going to be where I stop counting. The distance in between 172 and 450 is what I'm looking for.

$$450 - 172 = ?$$
$$172 + ? = 450$$



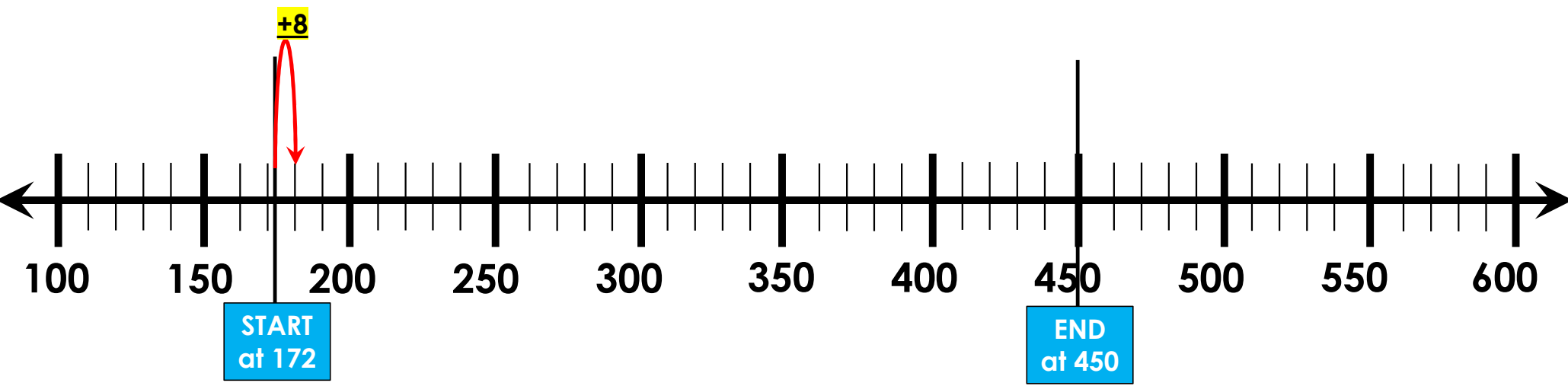
difference





Time to count up! For my first jump, I'll go from 172 to 180 because it's an easy number to work with.

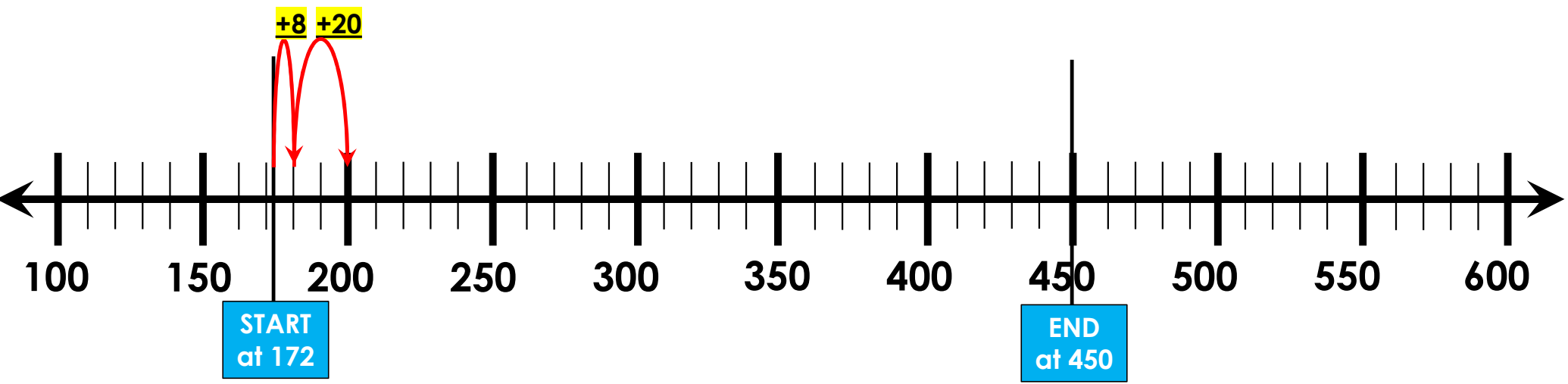
$$450 - 172 = ?$$
$$172 + ? = 450$$



 WATCH ME FIRST

Next, I'll jump from 180 to reach 200. That's 20 spaces.

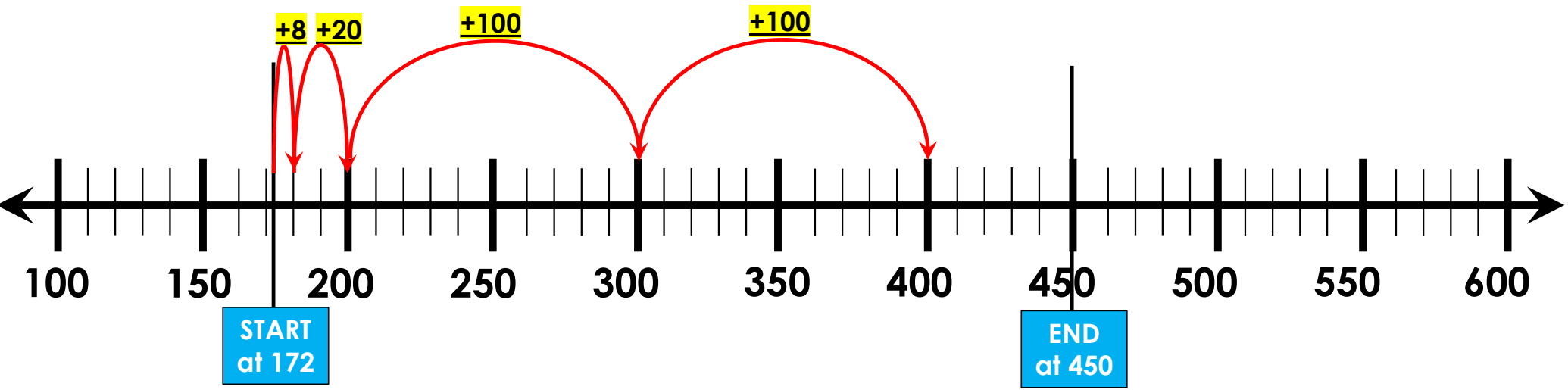
$$450 - 172 = ?$$
$$172 + ? = 450$$



 WATCH ME FIRST

Now I'll make a big jump from 200 to reach 300.
And make one more jump from 300 to 400. That's 200 spaces.

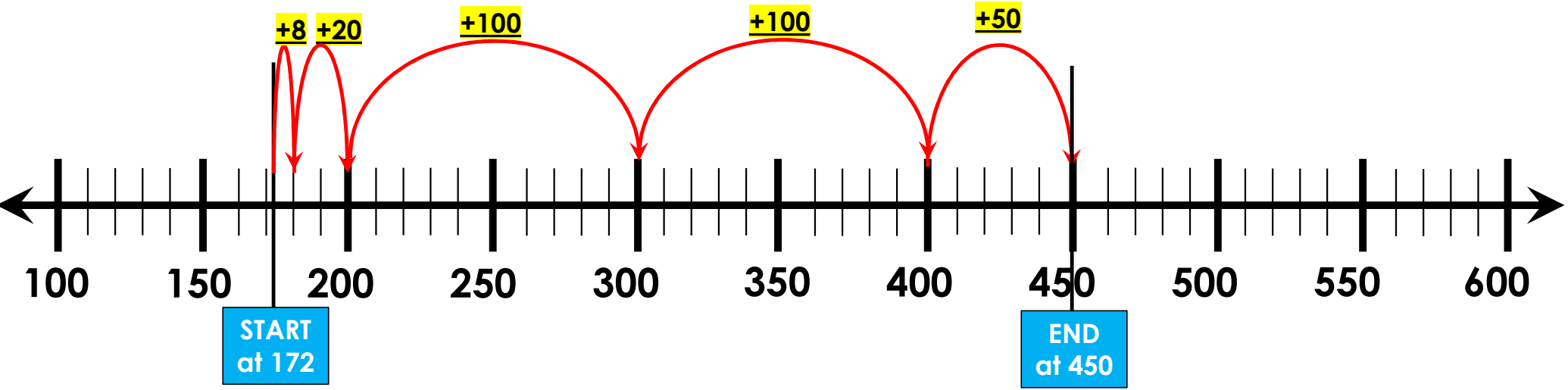
$$450 - 172 = ?$$
$$172 + ? = 450$$



 WATCH ME FIRST

I'm almost there! I'll make one last jump from 400 to 450. Now I need to add up all my jumps to find the difference.

$$450 - 172 = ?$$
$$172 + ? = 450$$

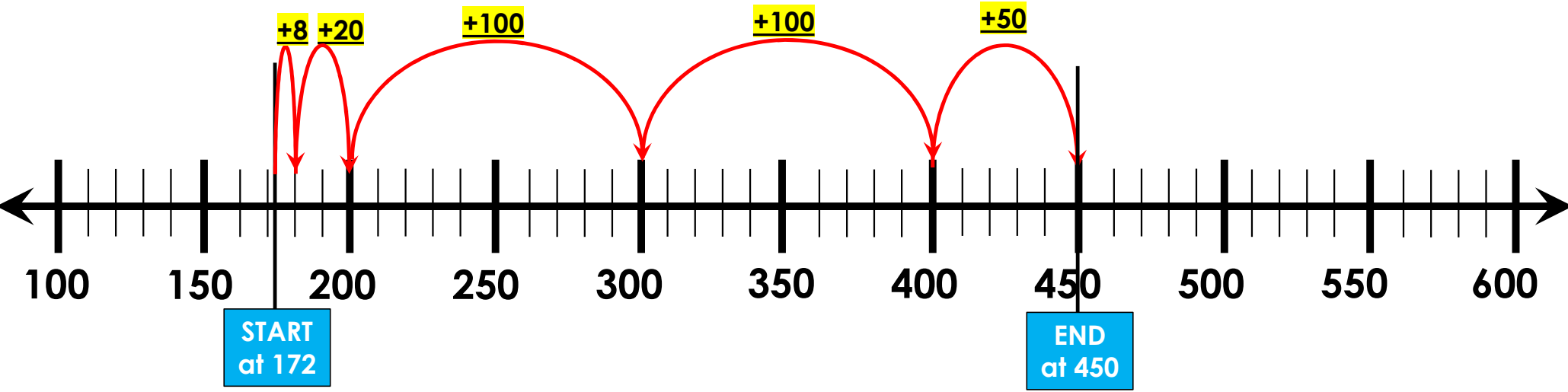




WATCH ME FIRST

I'm going to rearrange my jumps from largest to smallest, so that it's easier to add them up.

$$450 - 172 = ?$$
$$172 + ? = 450$$



Combine Your Jumps to Find the Difference

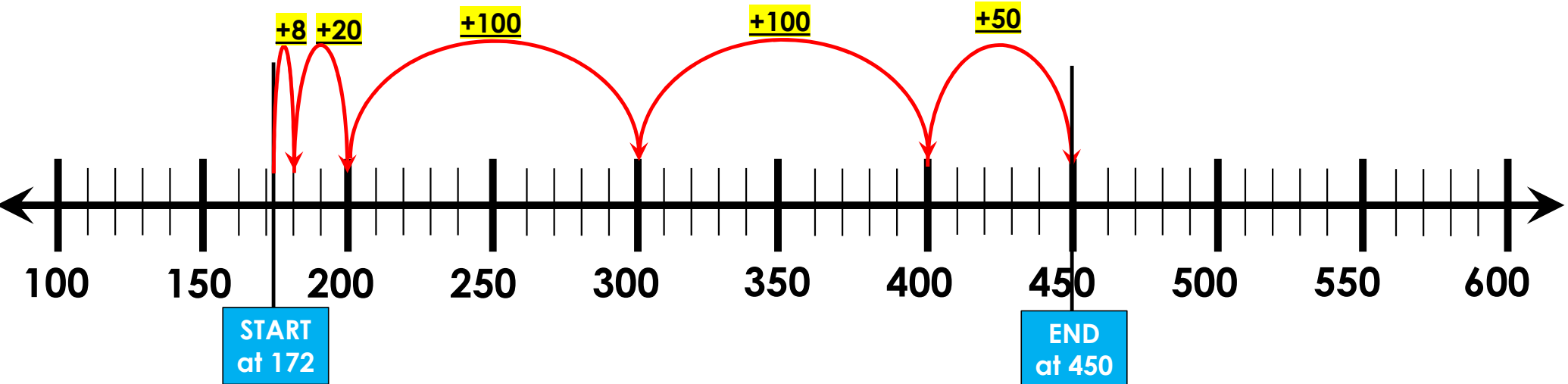
$$100 + 100 + 50 + 20 + 8 =$$



WATCH ME FIRST

After adding all my jumps together, the difference is 278.
So, 450 minus 172 is 278.

$$450 - 172 = ?$$
$$172 + ? = 450$$



Combine Your Jumps to Find the Difference

$$100 + 100 + 50 + 20 + 8 = 278$$



I used the inverse relationship between addition and subtraction to solve.

$$450 - 172 = ?$$

is the same as

$$172 + ? = 450$$

so

$$450 - 172 = 278$$

is the same as

$$172 + 278 = 450$$



LET'S WORK TOGETHER

Let's solve this one together!

$$\begin{array}{r} 300 \\ - 191 \\ \hline \end{array}$$



Problem #1
LET'S WORK TOGETHER

How can I rearrange this subtraction equation, to make an unknown addend problem?

$$300 - 191 = ?$$

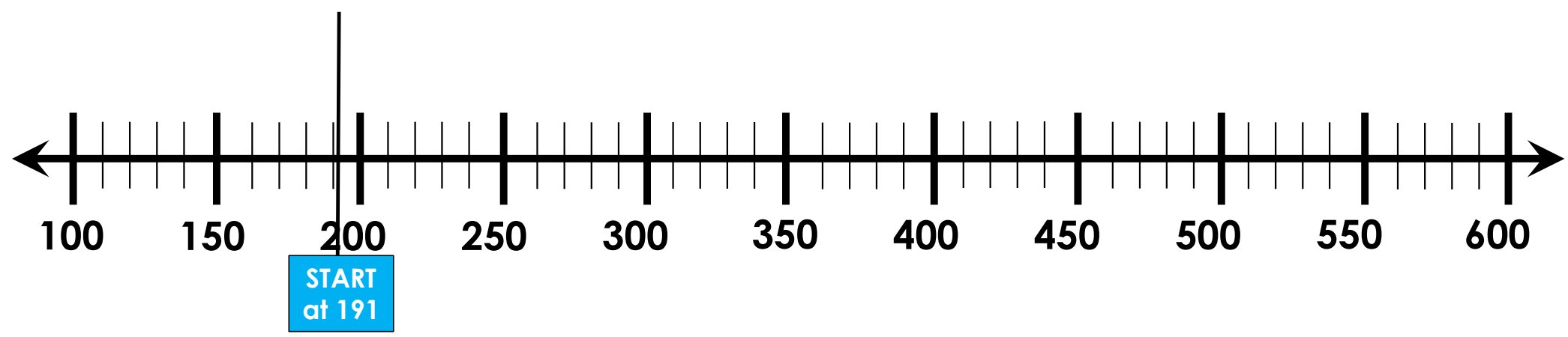
is the same as

$$191 + ? = 300$$

 **Problem #1**
LET'S WORK TOGETHER

What's the starting point on the number line?
The starting point is 191. Plot it!

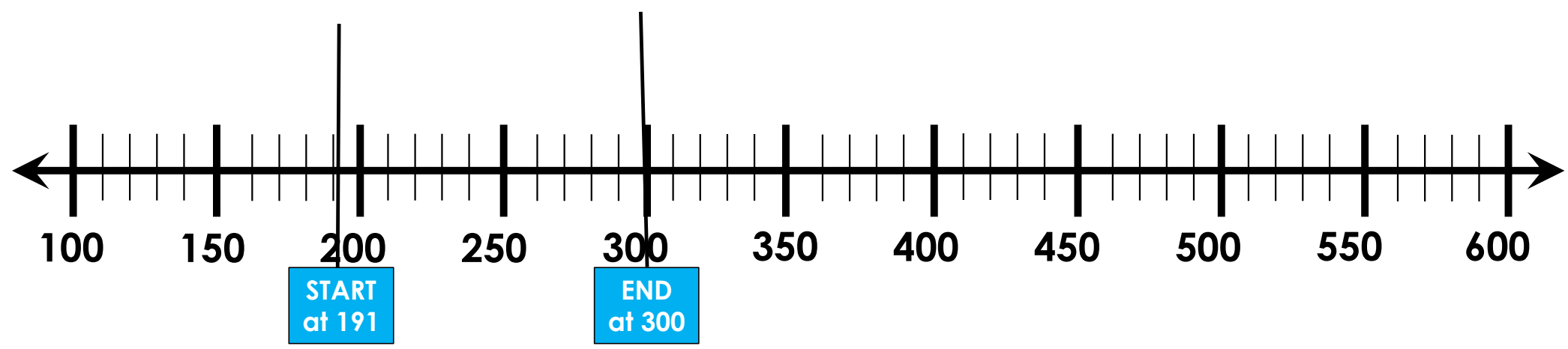
$$300 - 191 = ?$$
$$191 + ? = 300$$



 **Problem #1**
LET'S WORK TOGETHER

What's the ending point?
The ending point is 300. Plot it!

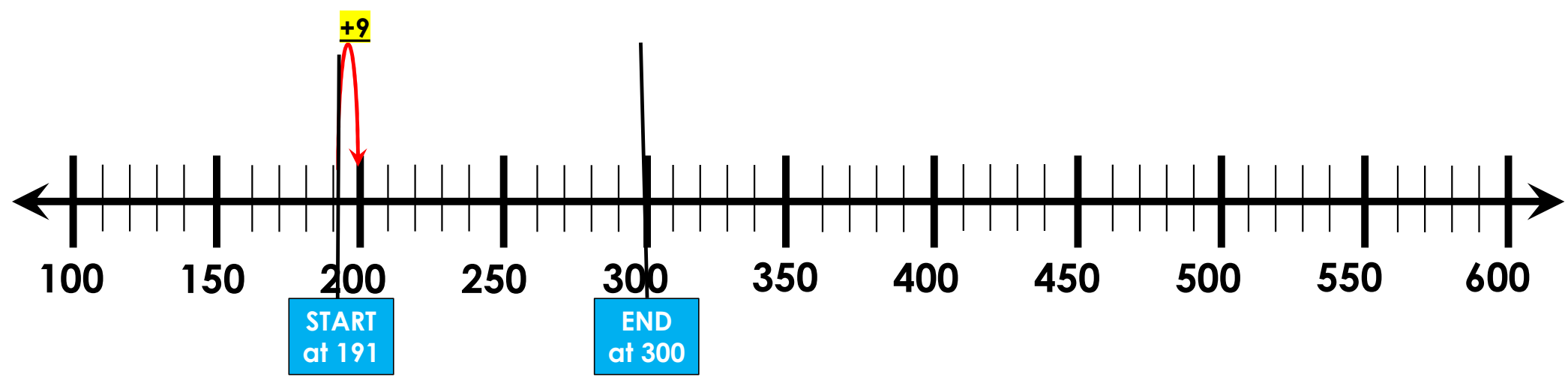
$$300 - 191 = ?$$
$$191 + ? = 300$$



 **Problem #1**
LET'S WORK TOGETHER

Let's jump from 191 to the nearest friendly number 200.
How can we record this jump on the number line?

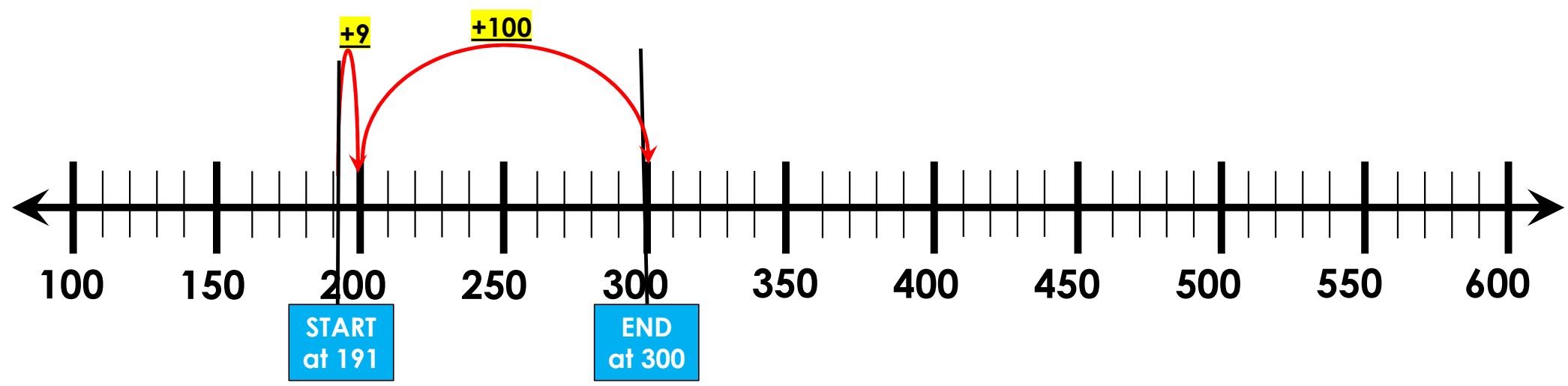
$$300 - 191 = ?$$
$$191 + ? = 300$$



 **Problem #1**
LET'S WORK TOGETHER

Now let's jump from 200 to 300.
How can we record this jump on the number line?

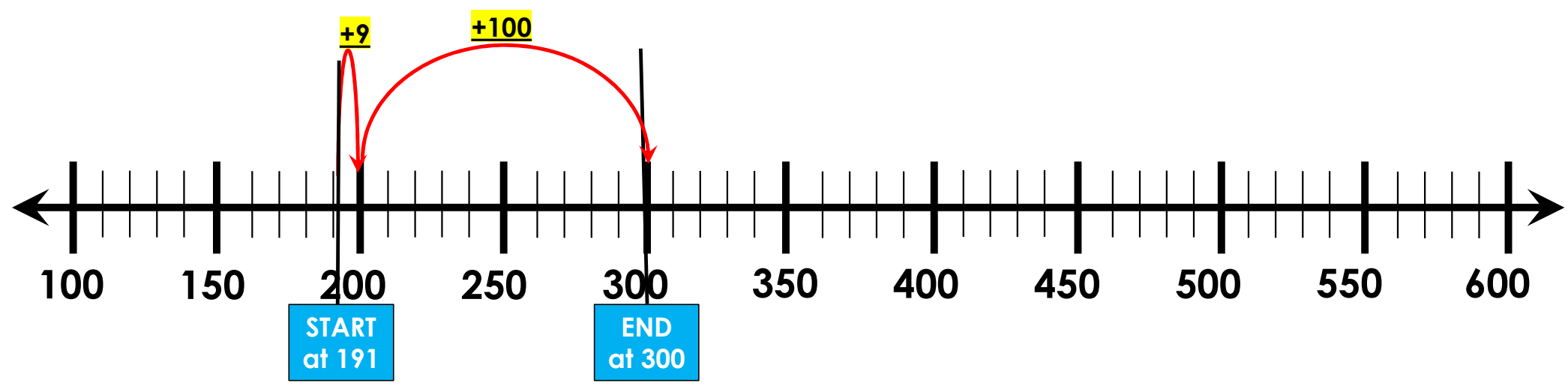
$$300 - 191 = ?$$
$$191 + ? = 300$$



 **Problem #1**
LET'S WORK TOGETHER

Now it's time to add our jumps. How should we record?

$$300 - 191 = ?$$
$$191 + ? = 300$$



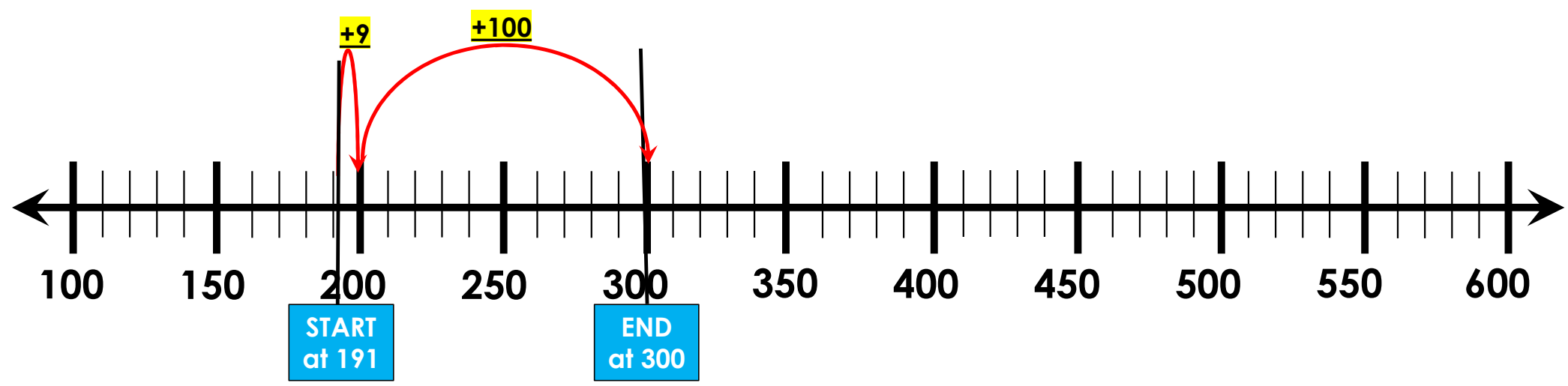
Combine Your Jumps to Find the Difference

$$100 + 9 =$$

 **Problem #1**
LET'S WORK TOGETHER

What is 300 minus 191?
After using the counting up strategy, 300 minus 191 is 109.

$300 - 191 = ?$
 $191 + ? = 300$



Combine Your Jumps to Find the Difference

$100 + 9 = 109$

 **Problem #1**
LET'S WORK TOGETHER

What's the missing number?

$$300 - 191 = ?$$

is the same as

$$191 + ? = 300$$

so

$$300 - 191 = 109$$

is the same as

$$191 + 109 = 300$$

LET'S DO ONE MORE TOGETHER...



Let's solve this one together!

$$\begin{array}{r} 470 \\ - 225 \\ \hline \end{array}$$



Problem #2
LET'S WORK TOGETHER

How can I rearrange this subtraction equation, to make an unknown addend problem?

$$470 - 225 = ?$$

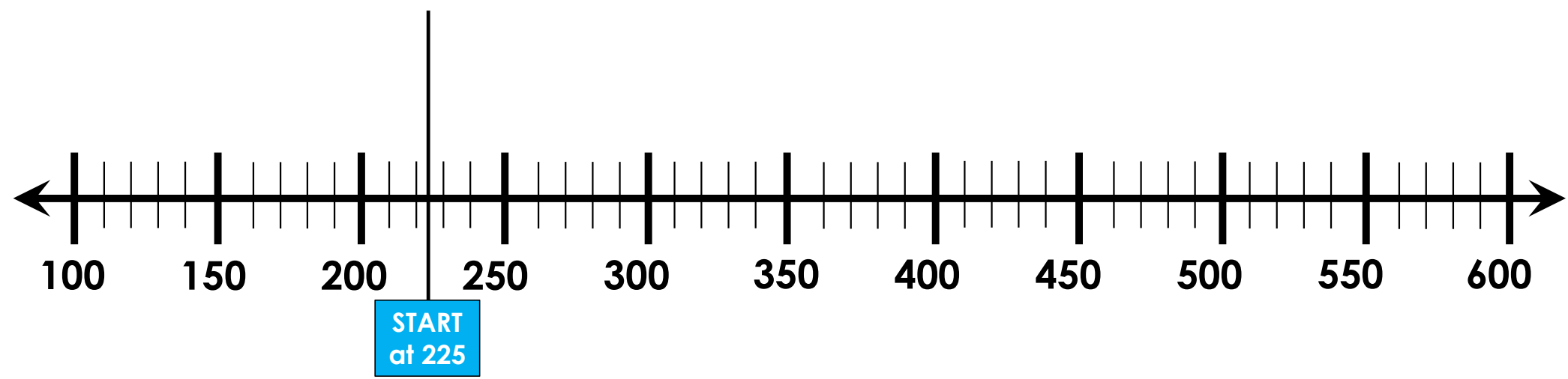
is the same as

$$225 + ? = 470$$

 **Problem #2**
LET'S WORK TOGETHER

What's the starting point on the number line?
The starting point is 225. Plot it!

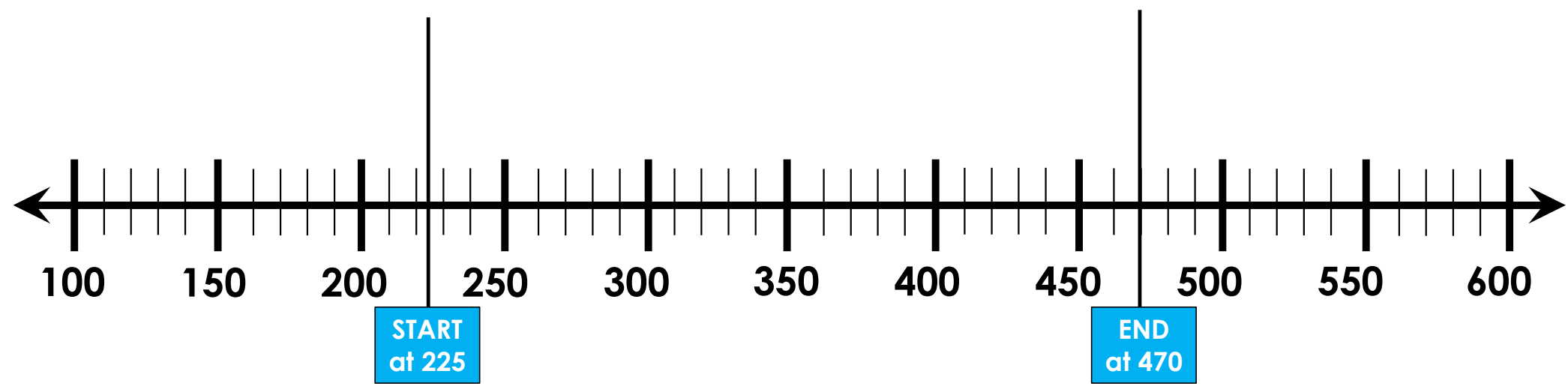
$$470 - 225 = ?$$
$$225 + ? = 470$$



 **Problem #2**
LET'S WORK TOGETHER

What's the ending point?
The ending point is 470. Plot it!

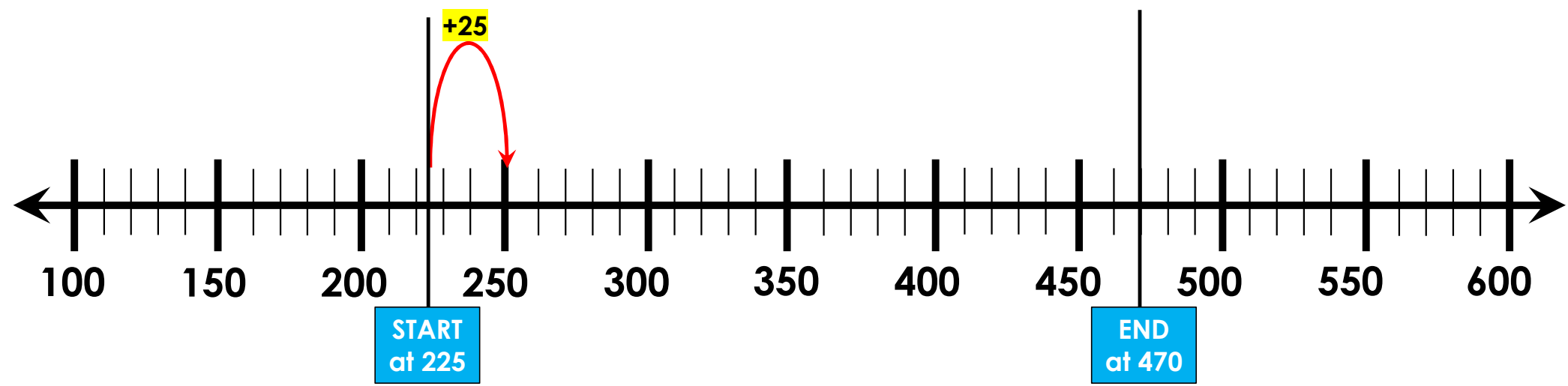
$$470 - 225 = ?$$
$$225 + ? = 470$$



 **Problem #2**
LET'S WORK TOGETHER

Let's jump from 225 to 250.
How can we record this jump on the number line?

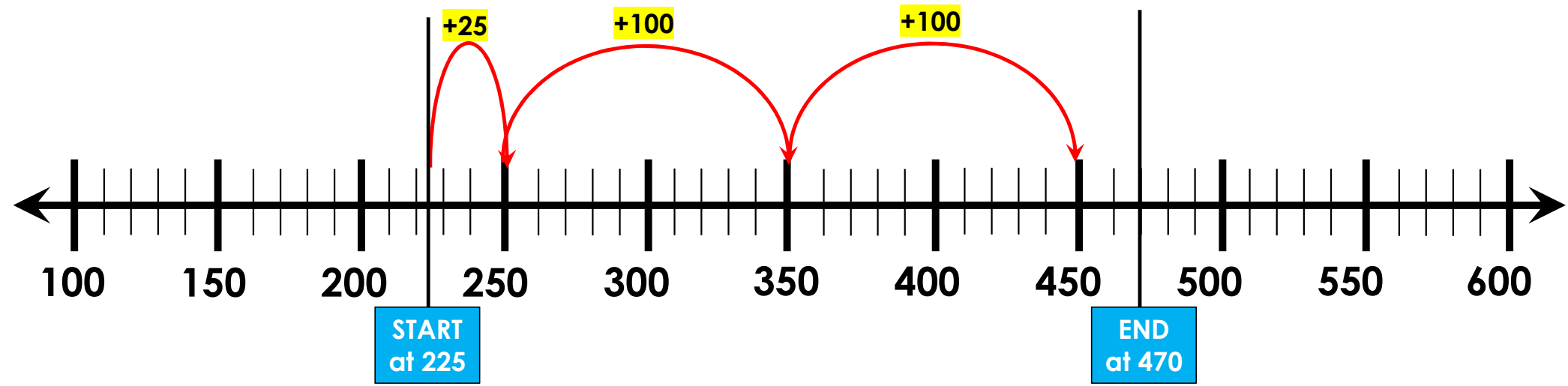
$$470 - 225 = ?$$
$$225 + ? = 470$$



 **Problem #2**
LET'S WORK TOGETHER

Now let's jump in hundreds. I'll jump from 250 to 350.
And again from 350 to 450.

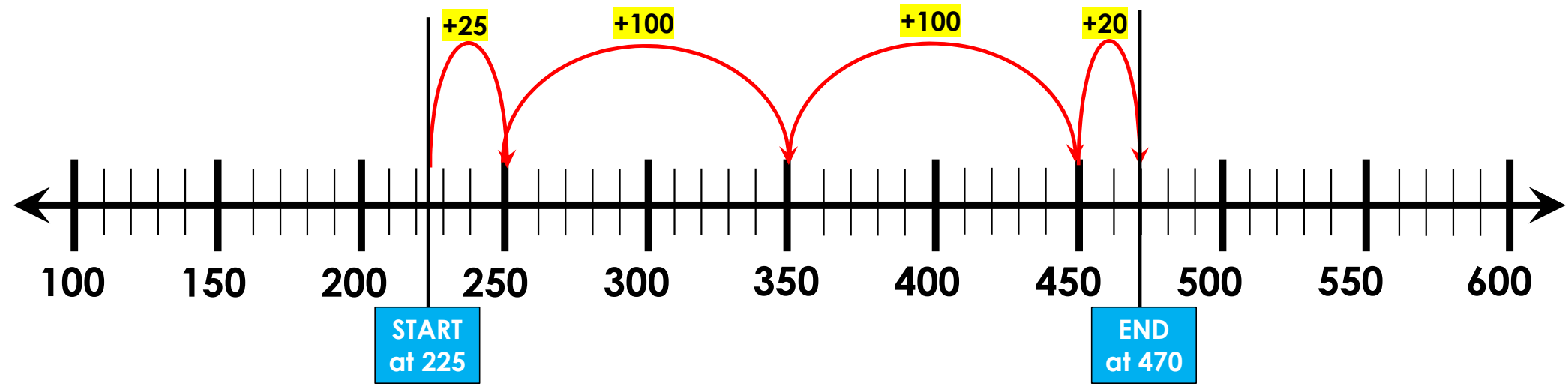
$$470 - 225 = ?$$
$$225 + ? = 470$$



 **Problem #2**
LET'S WORK TOGETHER

Finally, let's jump from 450 to the end point.
How can we record this jump on the number line?

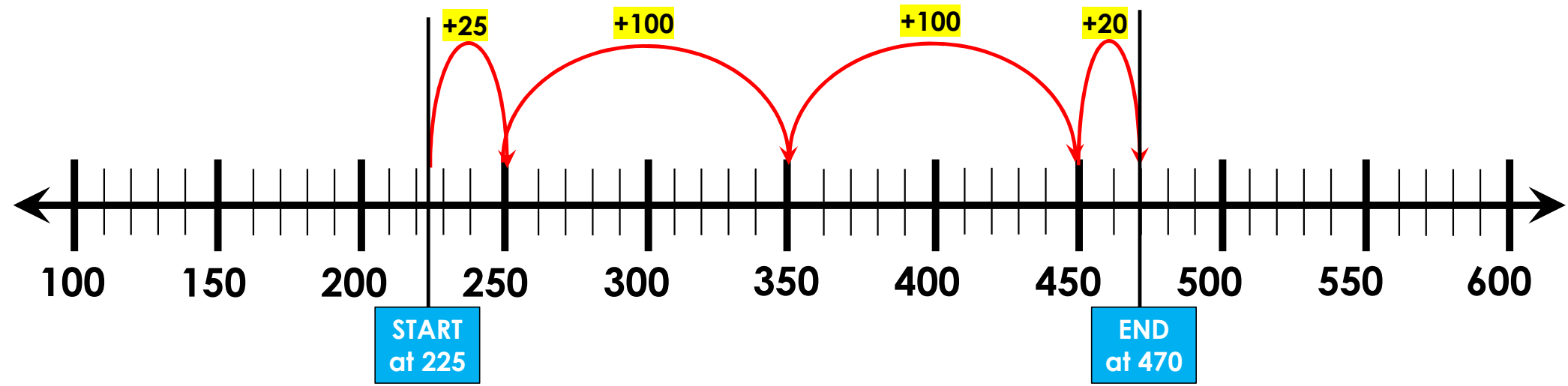
$$470 - 225 = ?$$
$$225 + ? = 470$$



 **Problem #2**
LET'S WORK TOGETHER

Now it's time to add our jumps. How should we record?

$$470 - 225 = ?$$
$$225 + ? = 470$$



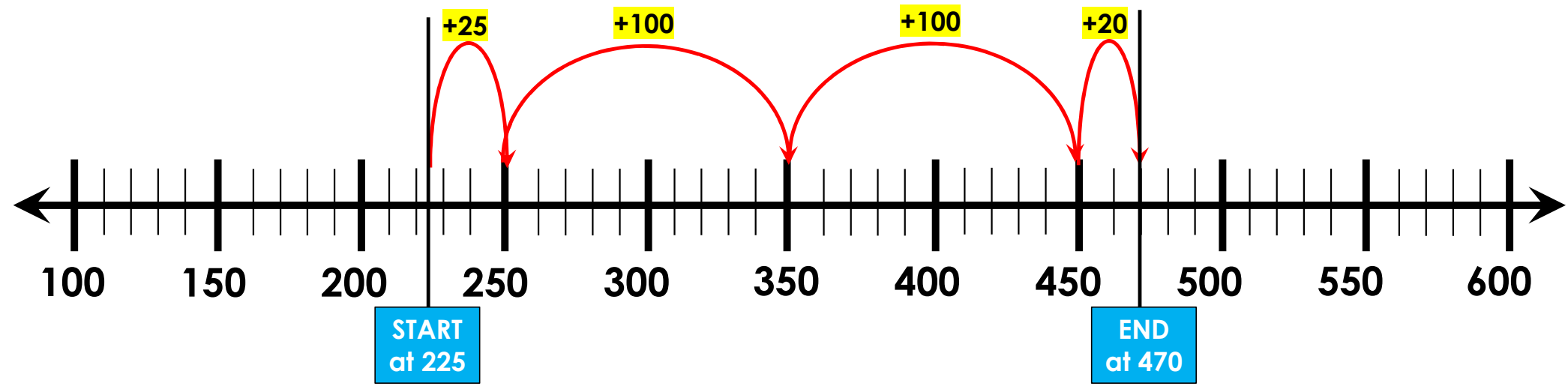
Combine Your Jumps to Find the Difference

$$100 + 100 + 25 + 20 =$$

 **Problem #2**
LET'S WORK TOGETHER

What is 470 minus 225?
After using the counting up strategy, 470 minus 225 is 245.

$$470 - 225 = ?$$
$$225 + ? = 470$$



Combine Your Jumps to Find the Difference

$$100 + 100 + 25 + 20 = 245$$

CHECK - IN

- What did you notice?
- Can you make a connection to anything else you already know? How?
- Do you have any questions?

IT'S YOUR TURN

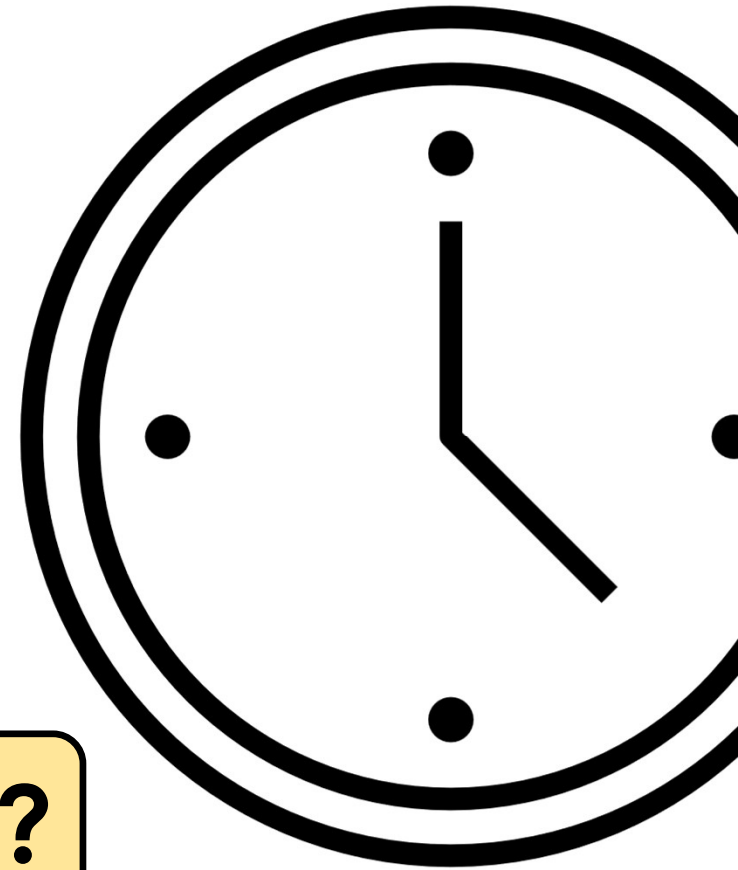


Now it's **“YOUR TURN”** to Solve



Don't forget to explain your thinking!

Time to **Discuss** and **Check** Your Answers

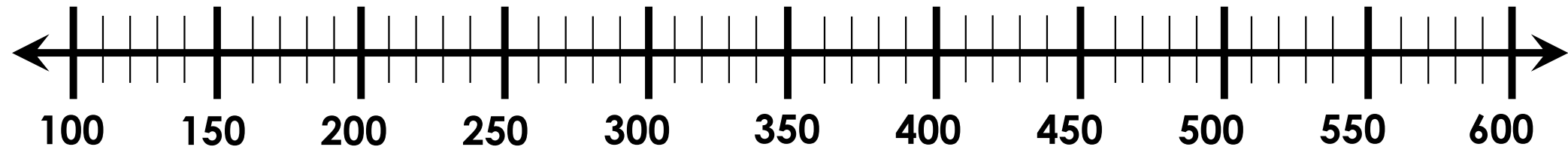


How did you solve?



Problem #1
YOUR TURN

Find the Difference: $525 - 243$



Combine Your Jumps to Find the Difference


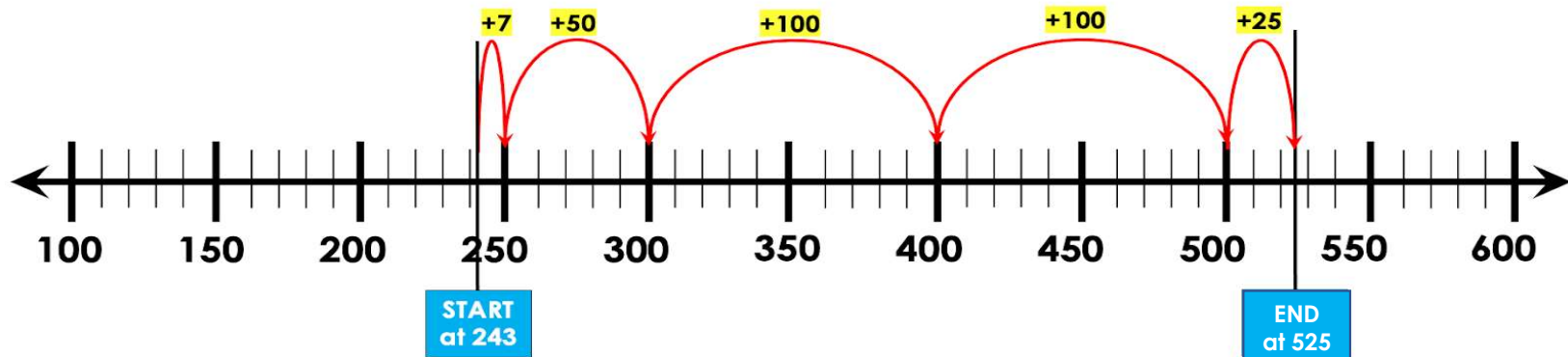


Problem #1

YOUR TURN

Find the Difference: $525 - 243 = 282$

There are many ways to make jumps and solve this problem. This is just one way.



Did you solve the same way?

If you solved another way, what did you do?

Combine Your Jumps to Find the Difference

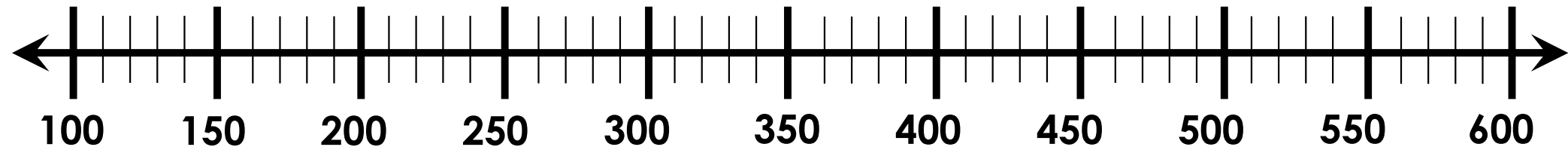
$$100 + 100 + 50 + 25 + 7 = 282$$



Problem #2

YOUR TURN

Find the Difference: $495 - 188$



Combine Your Jumps to Find the Difference


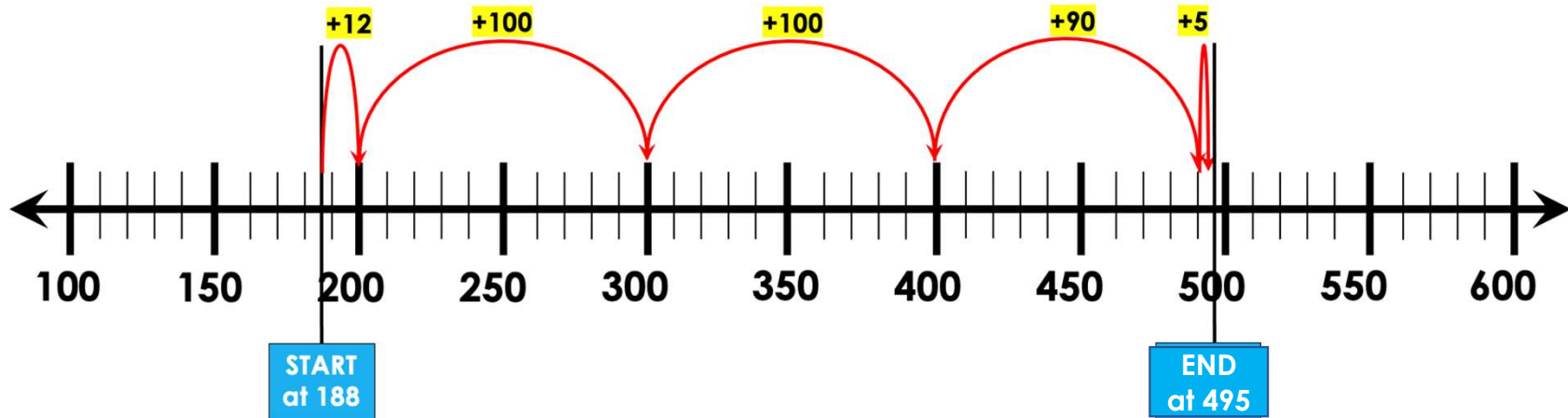


Problem #2

YOUR TURN

Find the Difference: $495 - 188 = 307$

There are many ways to make jumps and solve this problem. This is just one way.



Did you solve the same way?
If you solved another way, what did you do?

Combine Your Jumps to Find the Difference

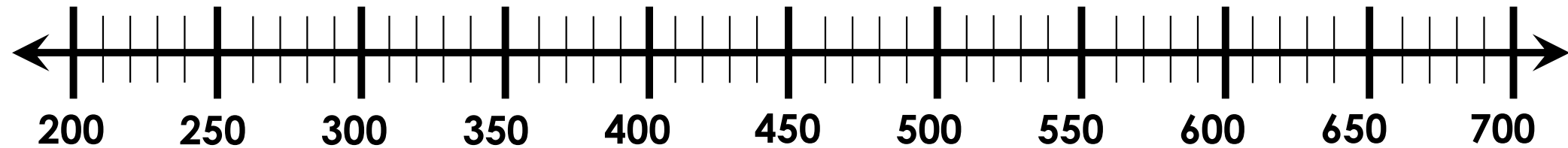
$$100 + 100 + 90 + 12 + 5 = 307$$



Problem #3

YOUR TURN

Find the Difference: $600 - 371$



Combine Your Jumps to Find the Difference

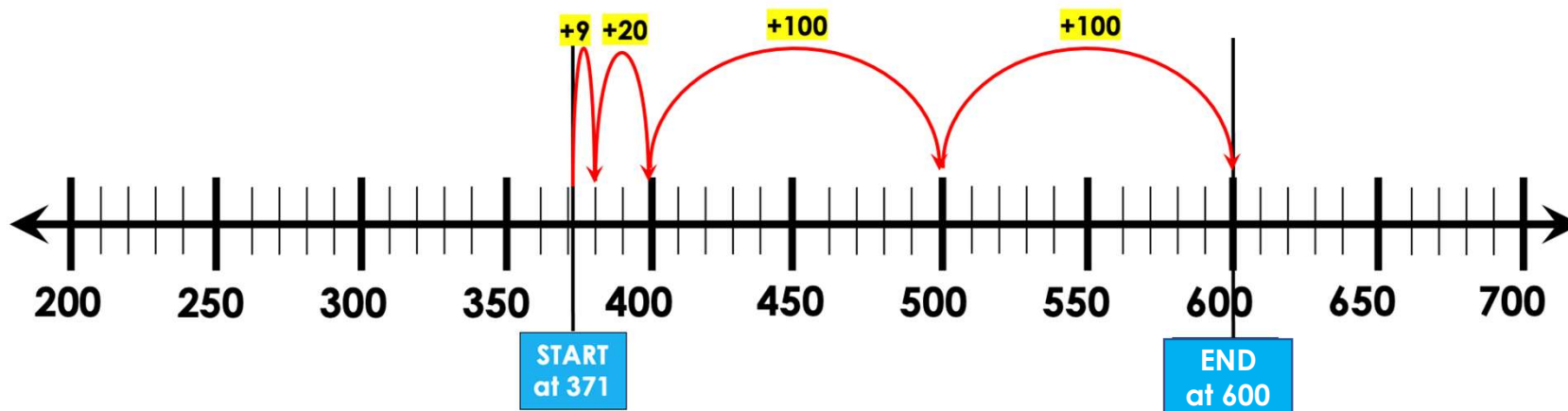


Problem #3

YOUR TURN

Find the Difference: $600 - 371 = 229$

There are many ways to make jumps and solve this problem. This is just one way.



Did you solve the same way?

If you solved another way, what did you do?

Combine Your Jumps to Find the Difference

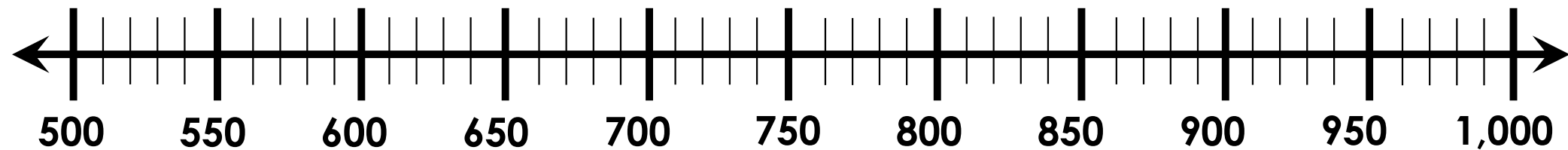
$$100 + 100 + 20 + 9 = 229$$



Problem #4

YOUR TURN

Find the Difference: $919 - 641$



Combine Your Jumps to Find the Difference


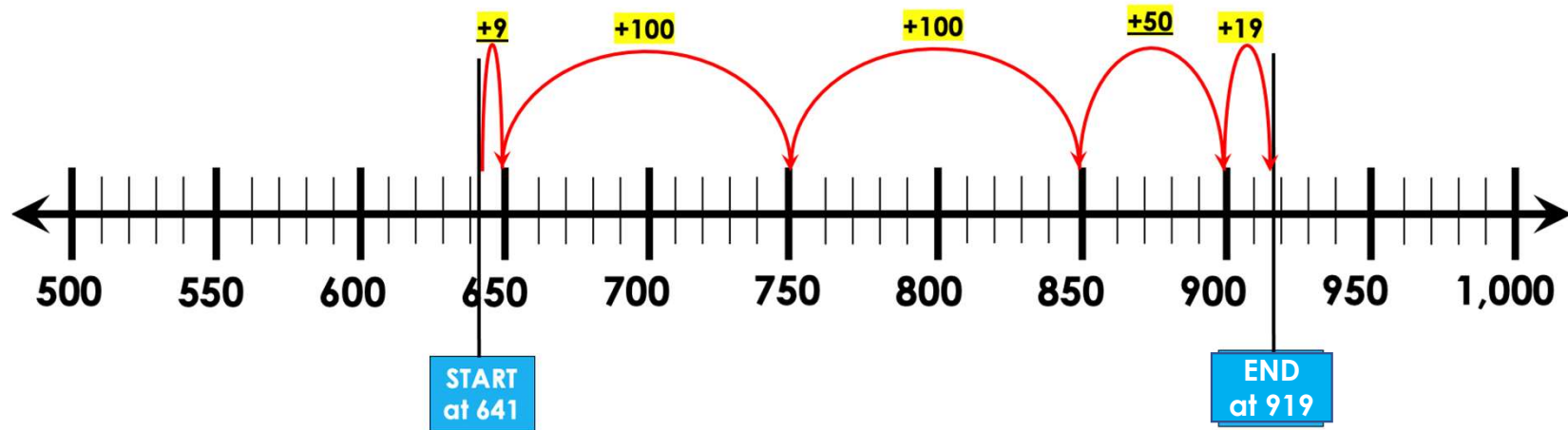


Problem #4

YOUR TURN

Find the Difference: $919 - 641 = 278$

There are many ways to make jumps and solve this problem. This is just one way.

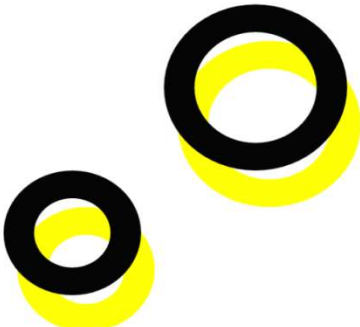
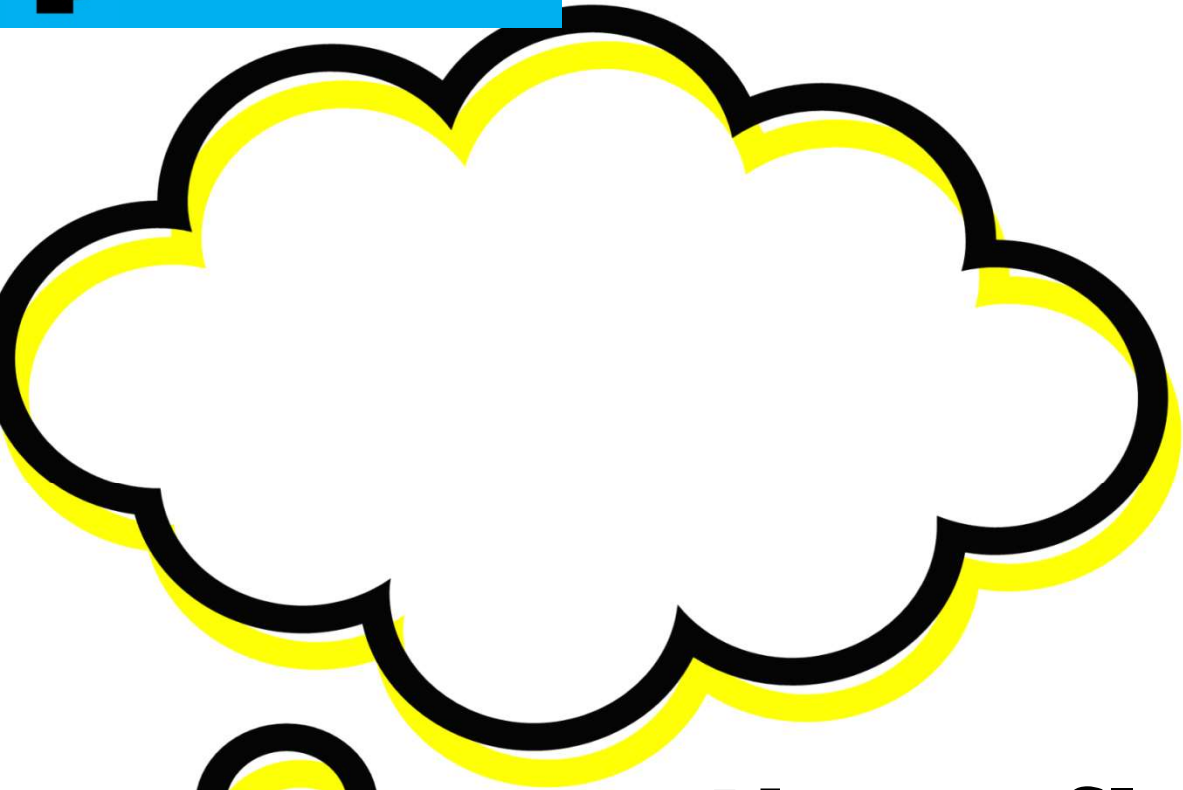


Did you solve the same way?
If you solved another way, what did you do?

Combine Your Jumps to Find the Difference

$$100 + 100 + 50 + 19 + 9 = 278$$

 **Let's Reflect**



It's reflection time!