

# ADDITION AND SUBTRACTION

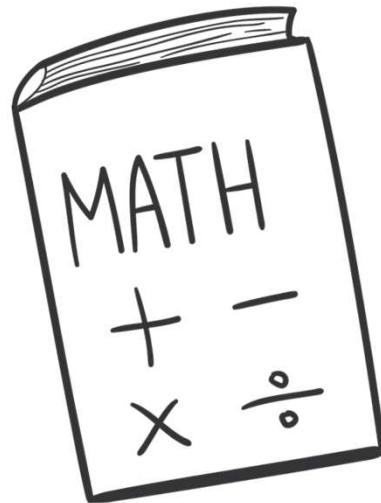
NUMBER LINE ADDITION

LESSON 1

# TODAY'S OBJECTIVE

Today, we will add numbers  
using a number line.

# TAKE OUT YOUR **MATH JOURNALS**





WATCH ME FIRST



Today we are going to use number lines to add numbers.

# **BUT FIRST...LET'S EXPLORE NUMBER LINES**

What do I know about number lines?





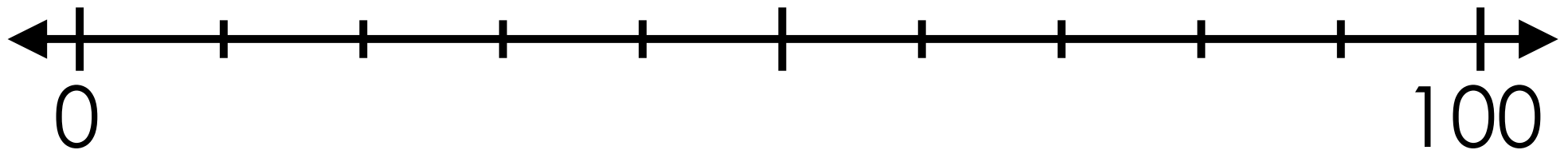
Number lines are usually broken up into **equal** units.





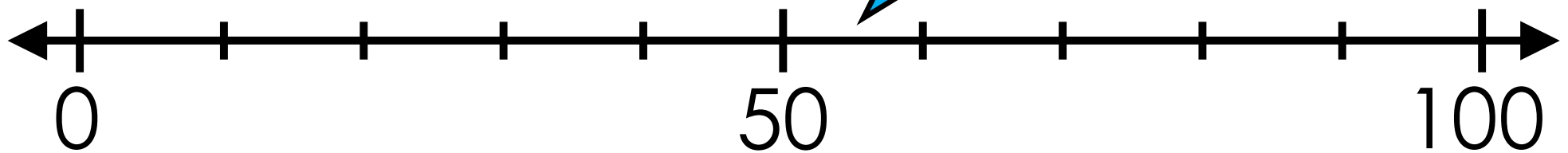
We can use numbers to show start and end points on a number line.

This is called a closed number line.



We use **friendly numbers** to help us locate other numbers on a number line.

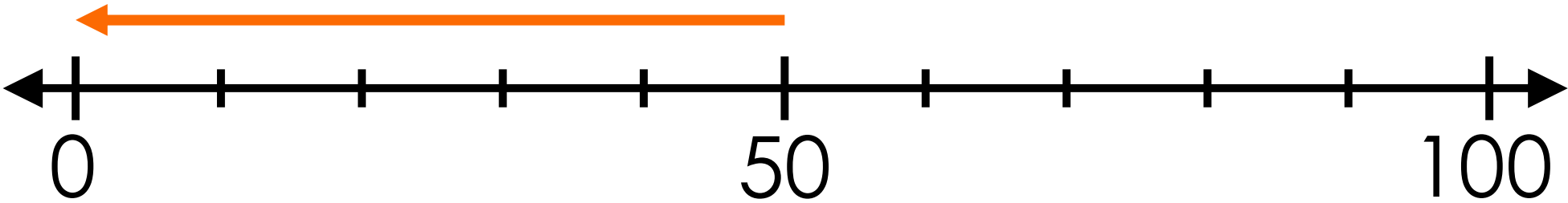
**Friendly numbers** are numbers that are easy to work with like 10, 25, 50, 100, 200, etc.





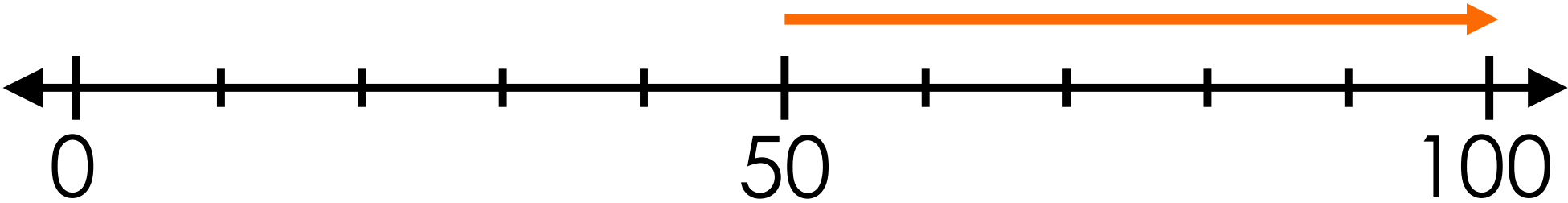


The numbers on a number line **decrease** as you move **left**...



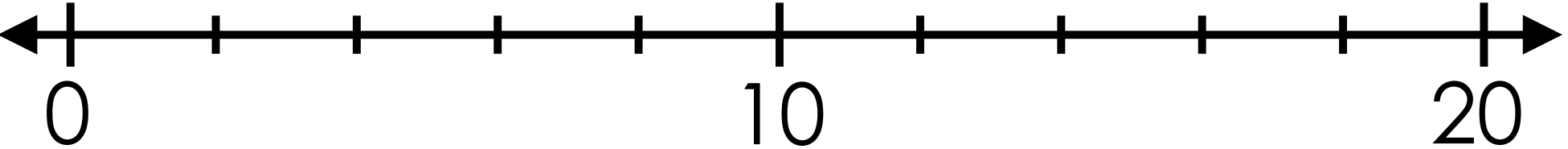
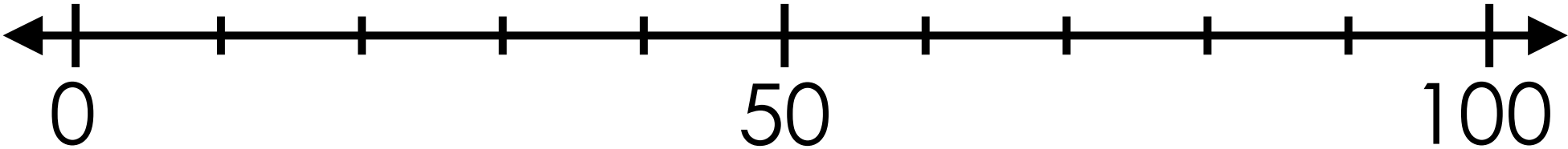


...and **increase** as you move **right**.



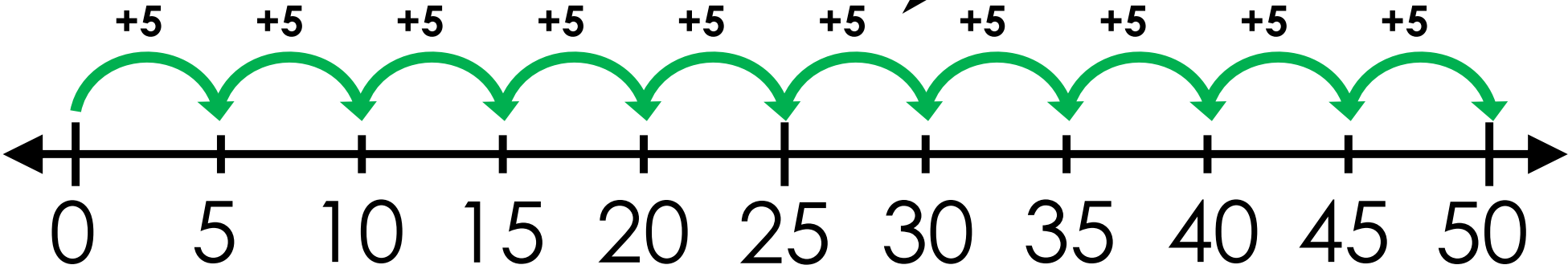


Different number lines use different **increments.**



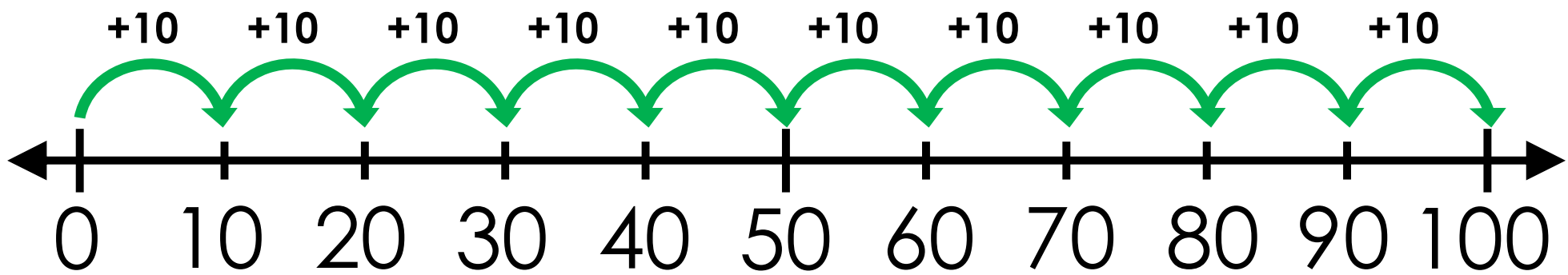


This number line increases by 5's.



This one increases by increments of 10.

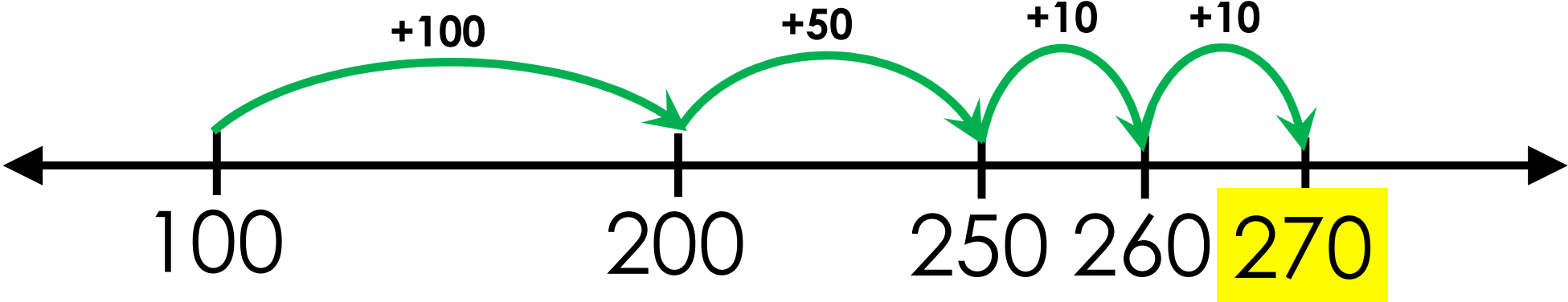
Other number lines use different increments.



 WATCH ME FIRST

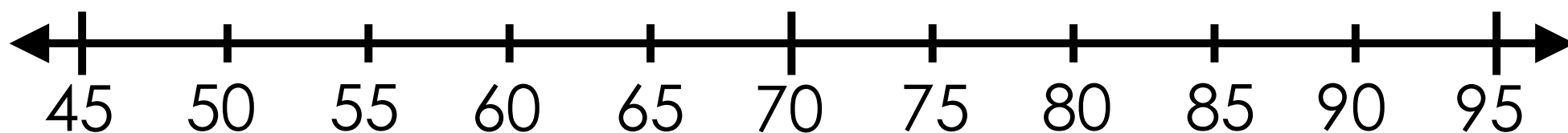
There are also open number lines. These are number lines with no numbers or tick marks. I have to add in the numbers myself.

Example:  $100 + 170 = 270$





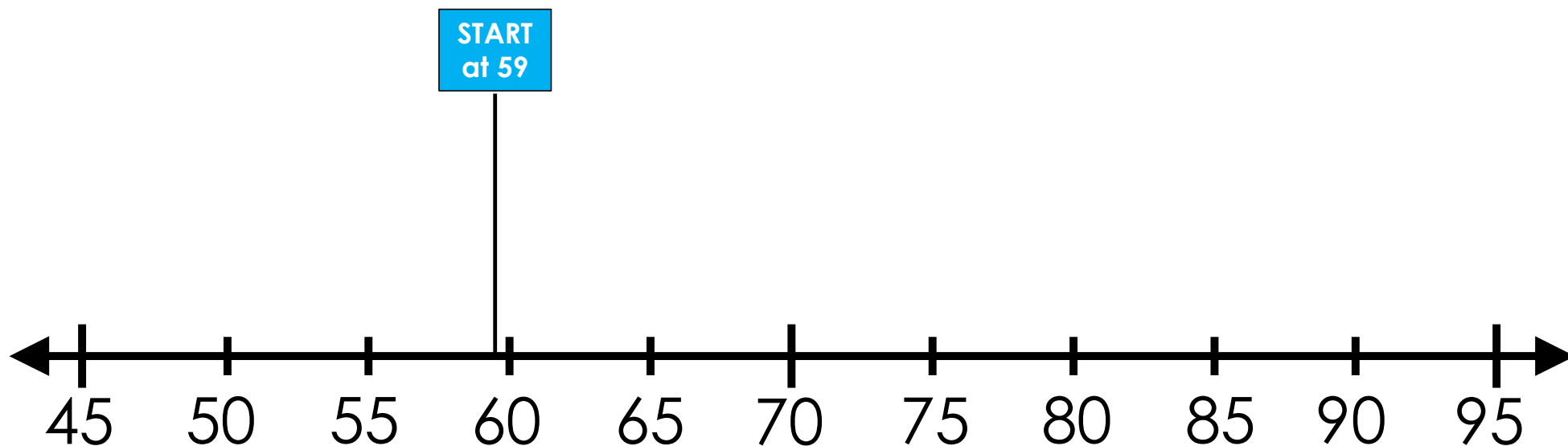
I'm going to use a number line to find the sum of  $59 + 32$ .



Today we are going to use number lines to add numbers.



Use the number line to find the sum of  $59 + 32$ .



First, I'll plot the largest addend, 59.



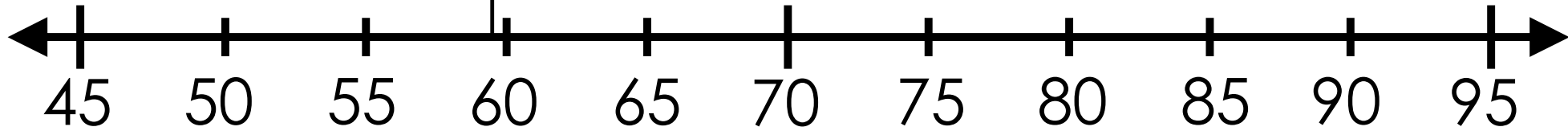
 WATCH ME FIRST

$$59 + 32 = ?$$



There are many ways to decompose 32 and jump along the number line. I'm going to show one way.

START  
at 59



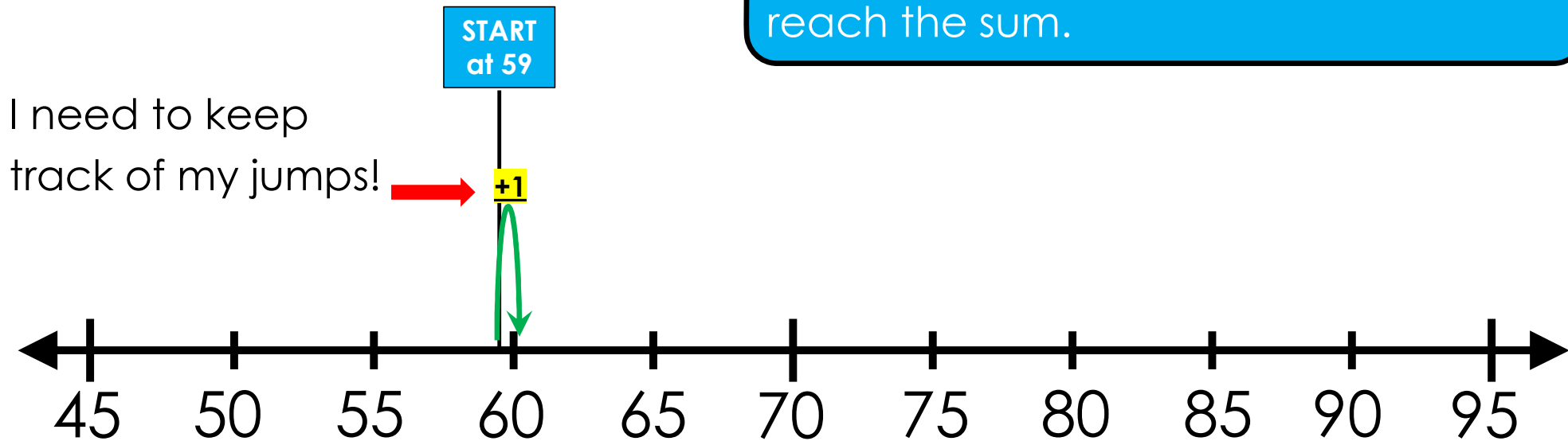
Next, I'll decompose the smaller addend as I make jumps to reach the sum.



$$59 + 32 = ?$$

I want to jump to a friendly number. First, I'll jump from 59 to 60.

I've moved one space. Now I have to move forward 31 more spaces to reach the sum.

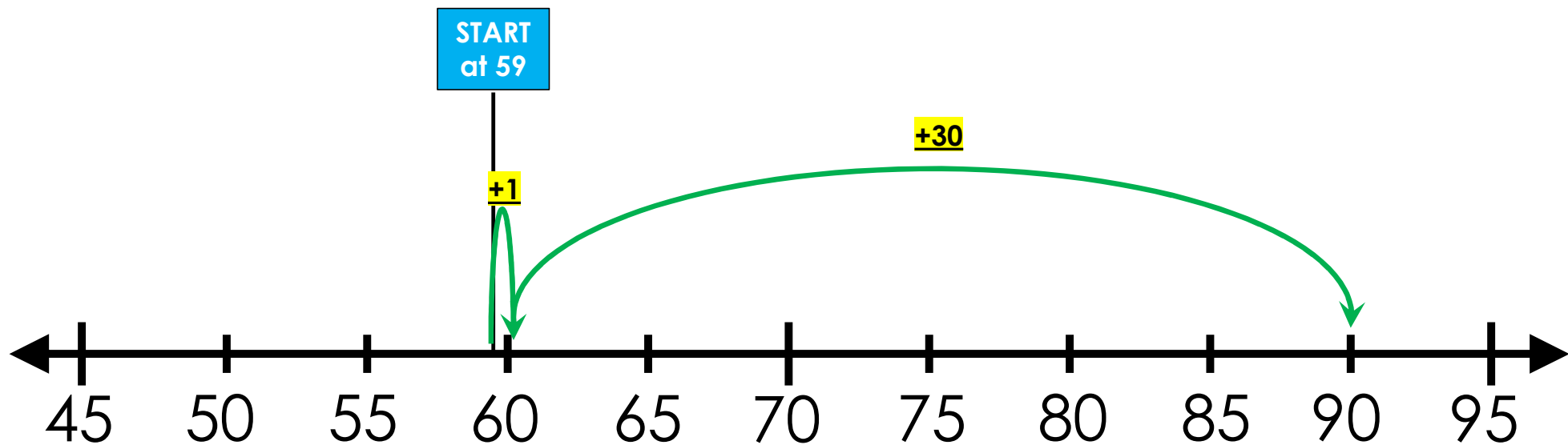




$$59 + 32 = ?$$

For my second jump, I'll go from 60 to 90.

Now, I've moved 31 spaces forward.



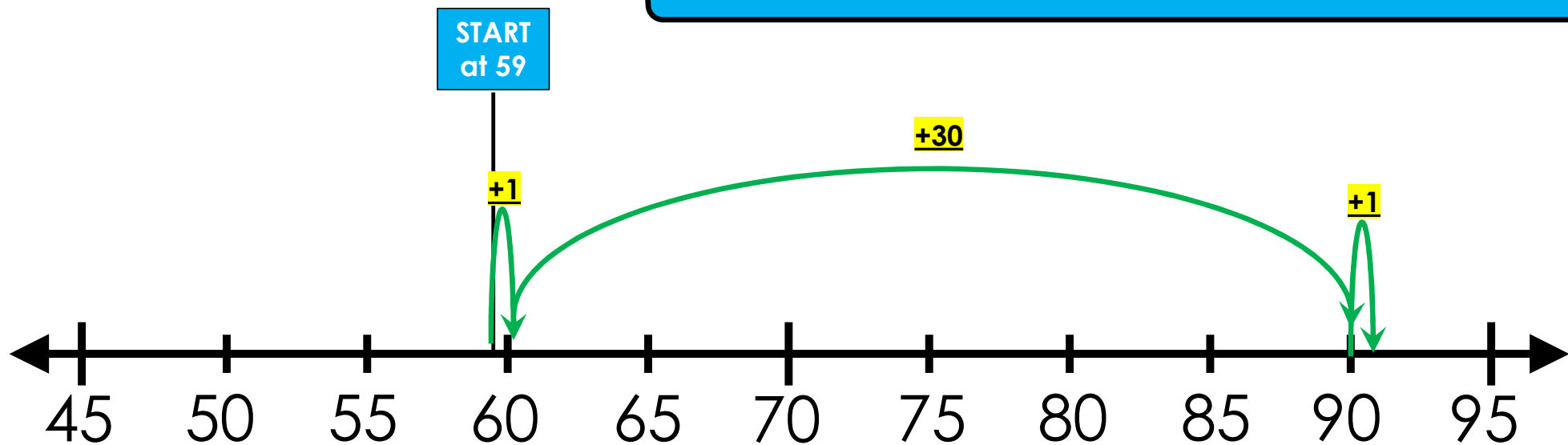
I need to jump to the next friendly number and track the number.

 WATCH ME FIRST

$$59 + 32 = ?$$

In order to move 32 spaces, I need to move forward 1 more space. For my last jump, I'll go from 90 to 91.

Time to self-check!



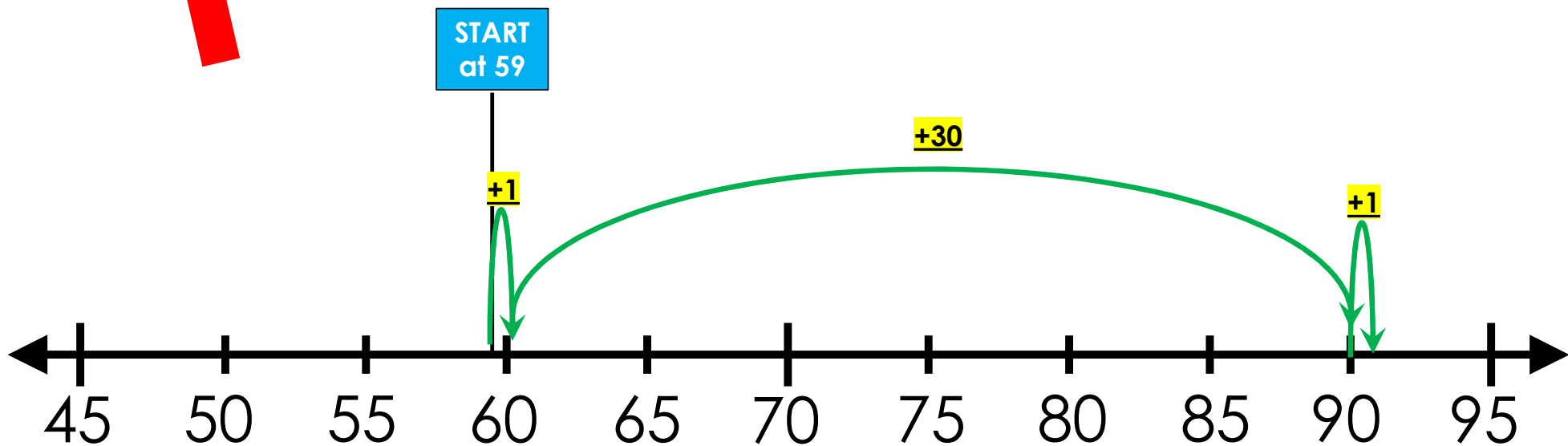
I'll make my final jump and track the number above.

 WATCH ME FIRST

$$59 + 32 = ?$$



$1 + 30 + 1$  equals 32.  
That's the same as the smaller addend.

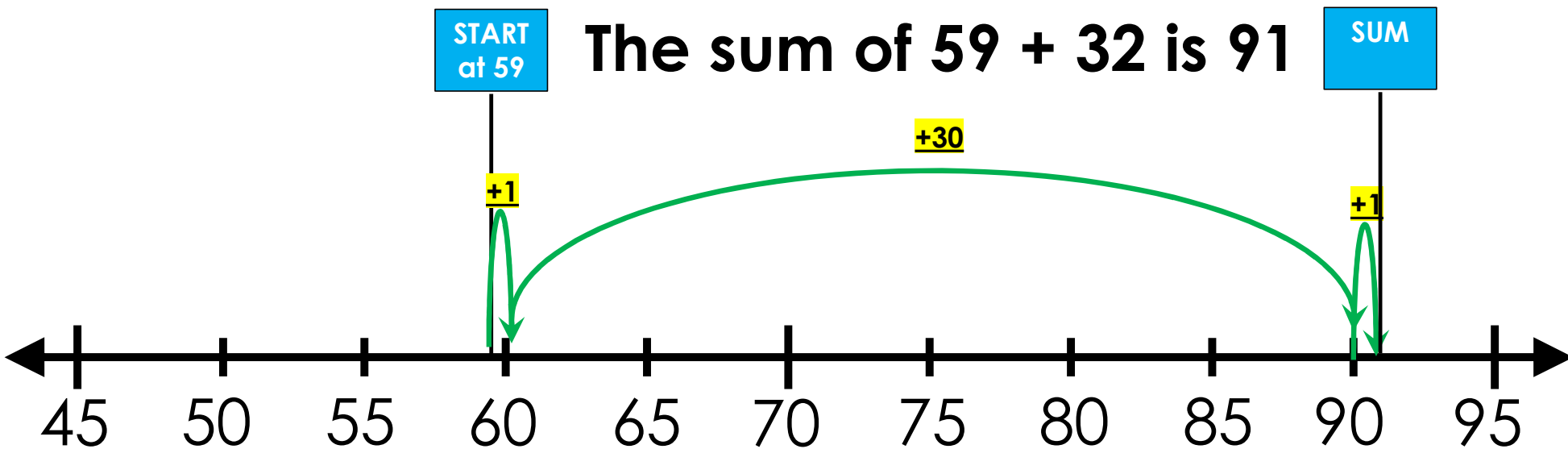


After my final jump, I'll add all my jumps together to make sure they equal the second addend.



$$59 + 32 = ?$$

In this case, it's 91.



To find the sum, I need to identify the last number I jumped to.



## To find the sum on a number line:

### STEP 1:

Plot the larger addend.

### STEP 2:

Decompose the smaller addend as you jump to reach the sum.

Keep track of your jumps to check your work!

### STEP 3:

Solve. The last number you land on is the sum.



LET'S WORK TOGETHER





## To add numbers on a number line:

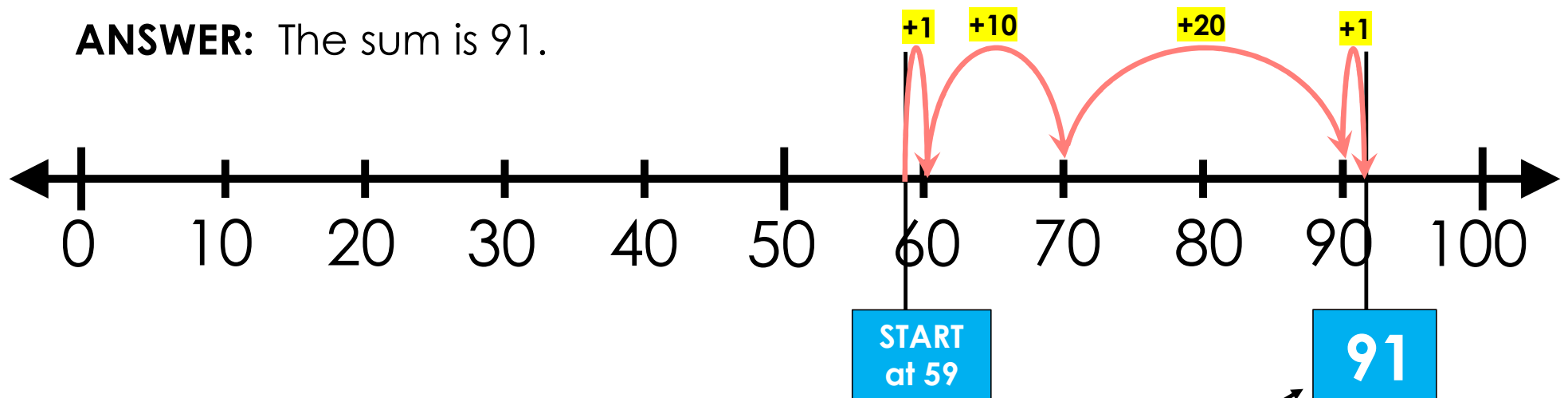
Step 1- Plot the larger first addend.

Step 2- Decompose the smaller addend by making jumps.

Step 3- Solve. The last number you land on is the sum.

**EXAMPLE:** What is  $59 + 32$ ?

**ANSWER:** The sum is 91.



**The last number you land on is the sum.**

# Let's solve this one together!

Chloe believes that  $108 + 147 = 295$ .  
Do you agree or disagree?  
Show your work.

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

Let's use this number line to find the sum of  $108 + 147$ .



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

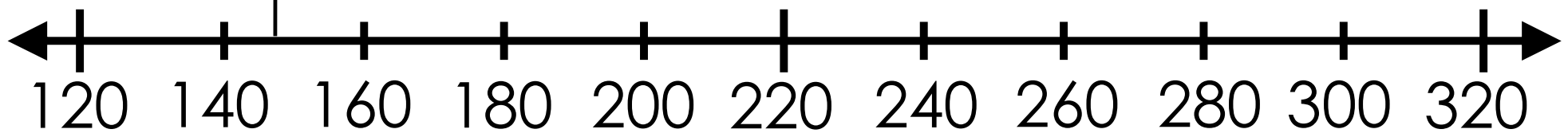
What's the first number we need to plot?

$$108 + 147 = ?$$



START  
at 147

Yes! We need to plot 147 because it's the larger addend.



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

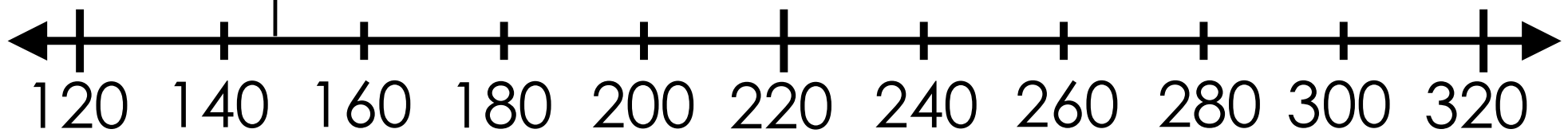
Next, let's decompose the number 108 as we hop along the number line. This will help us find the sum.

**108 + 147 = ?**



There are many ways to decompose 108 and jump along the number line. We'll practice one way together.

START  
at 147



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

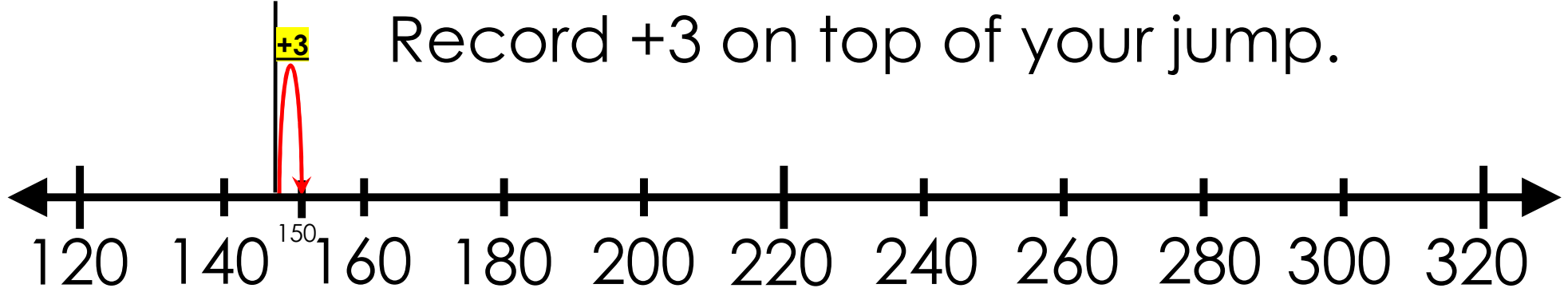
**108 + 147 = ?**

Let's hop 3 spaces to get to 150, this is a friendly number. Using friendly numbers makes jumping on the number line easier.

START  
at 147

147 + 3 is 150.

Record +3 on top of your jump.

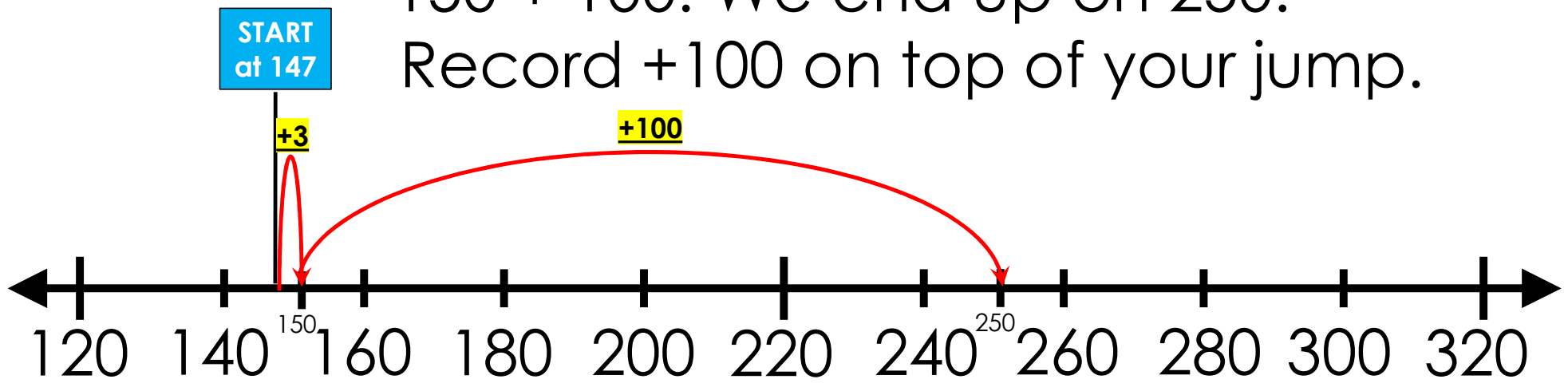


 **Problem #1**  
LET'S WORK TOGETHER

**$108 + 147 = ?$**

We have 105 spaces left to jump to reach the sum.  
Let's jump 100 spaces this time.  
What number do we end on?

150 + 100. We end up on 250.  
Record +100 on top of your jump.

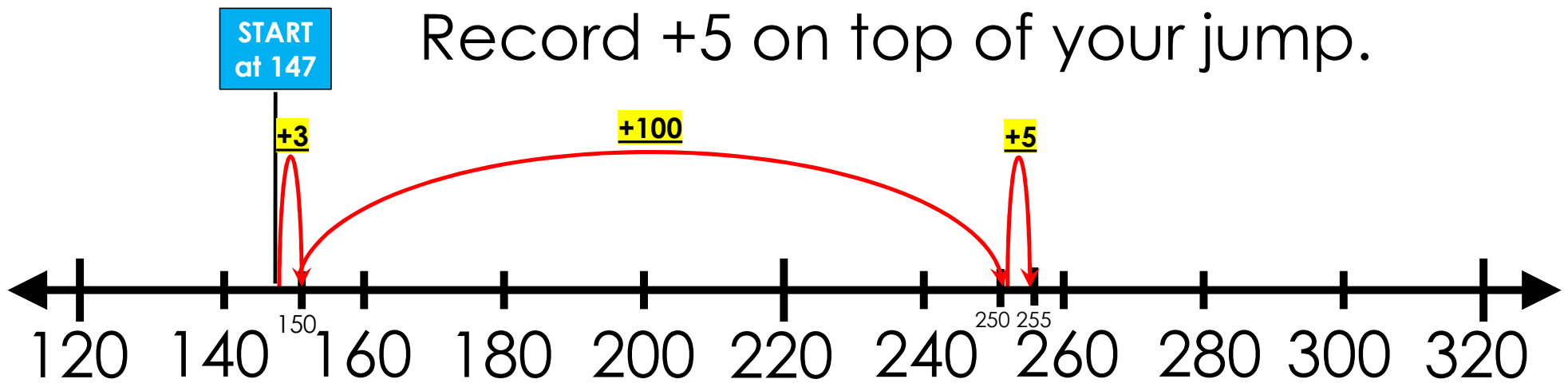


 **Problem #1**  
LET'S WORK TOGETHER

We only have 5 spaces left to jump. Let's do it!  
What number do we end on?

$108 + 147 = ?$

250 + 5. We end up on 255.  
Record +5 on top of your jump.

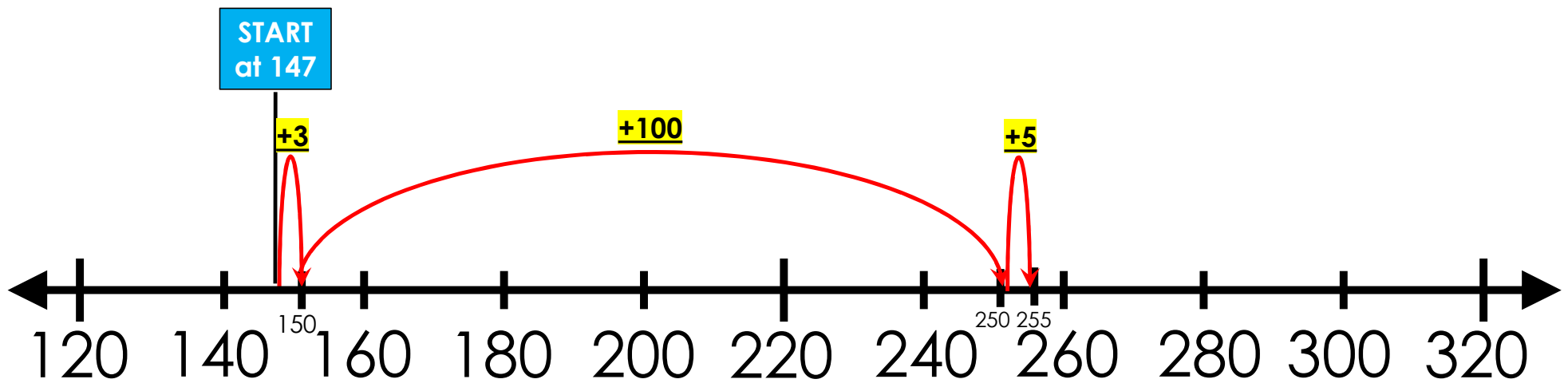




 **Problem #1**  
LET'S WORK TOGETHER

Let's self-check our jumps.  
Do they add up to 108?

$108 + 147 = ?$



Decompose Self-Check

$3 + 100 + 5 = 108$

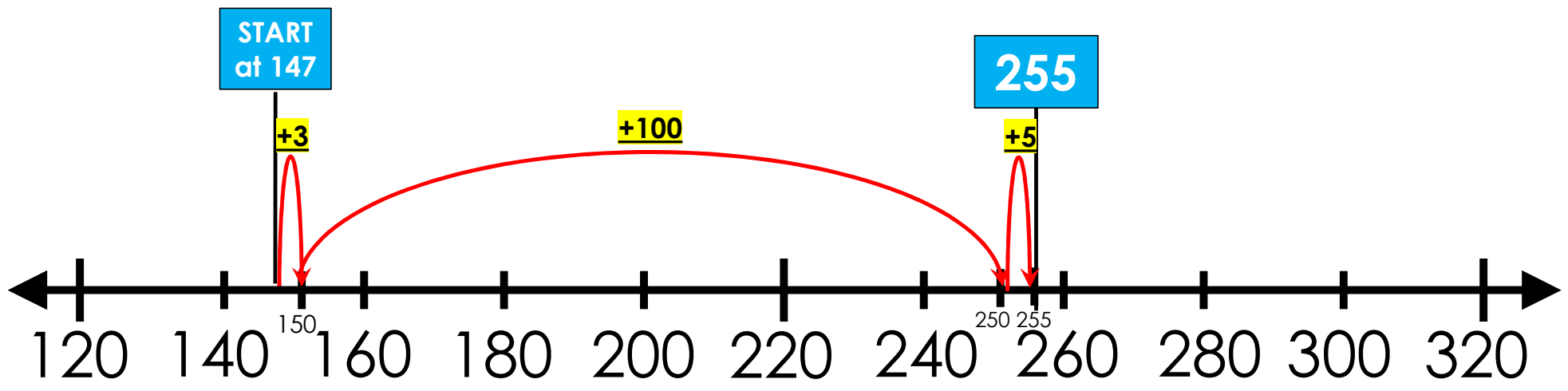
Answer

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

$108 + 147 = ?$

YES! All the jumps add up to 108.  
What was our final stop on the number line?

The sum is 255.



Decompose Self-Check

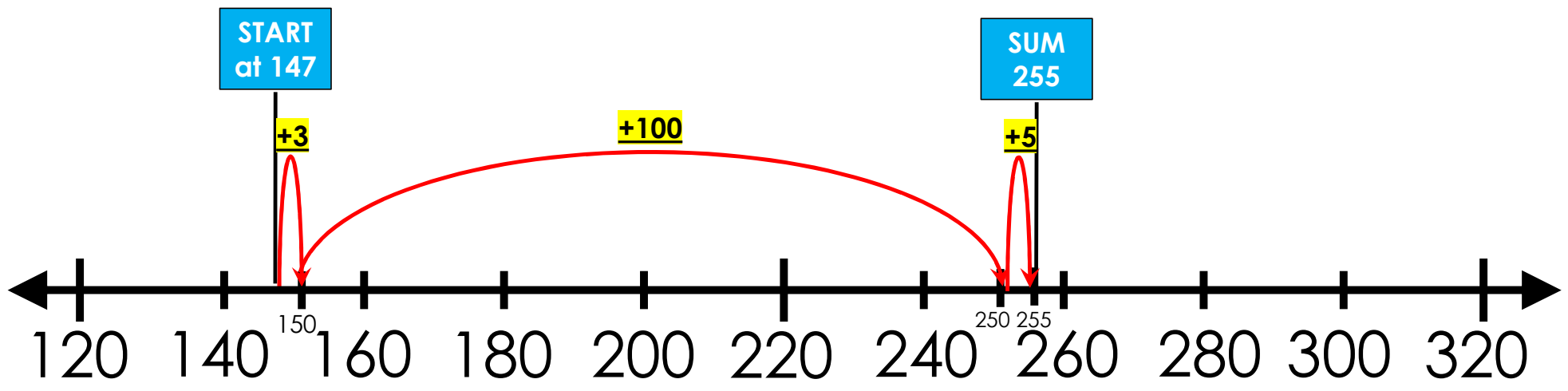
$3 + 100 + 5 = 108$

Answer

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

**$108 + 147 = ?$**

Let's revisit the question.  
Chloe believes that  $108 + 147 = 295$ .  
Do you agree or disagree?



Decompose Self-Check

$3 + 100 + 5 = 108$

Answer

Disagree!  $108 + 147$  is equal to 255.

# 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

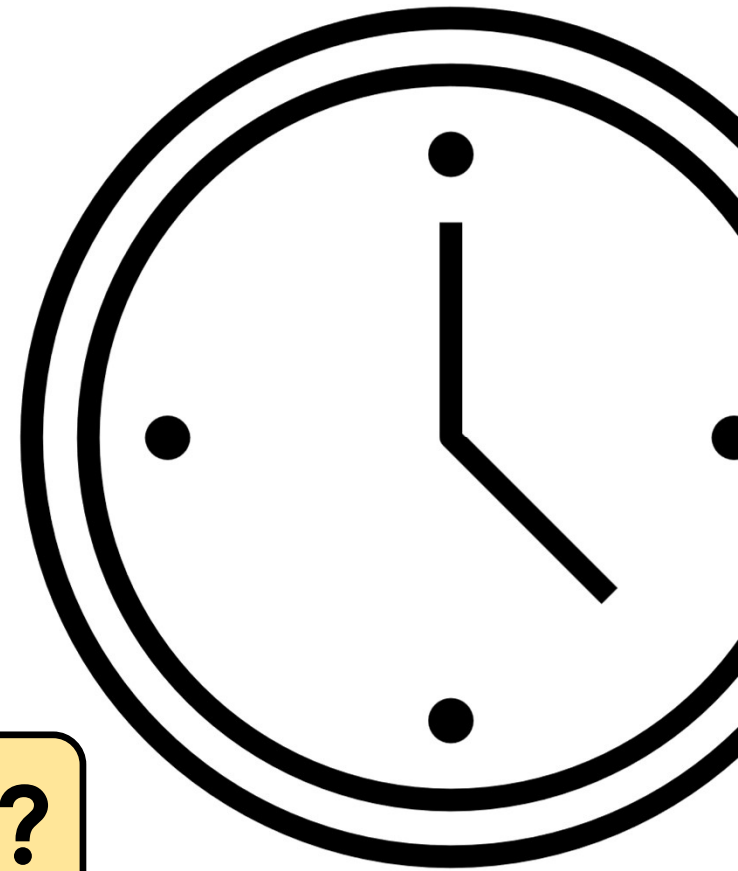


Now it's **“YOUR TURN”** to Solve



**Don't forget to explain your thinking!**

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



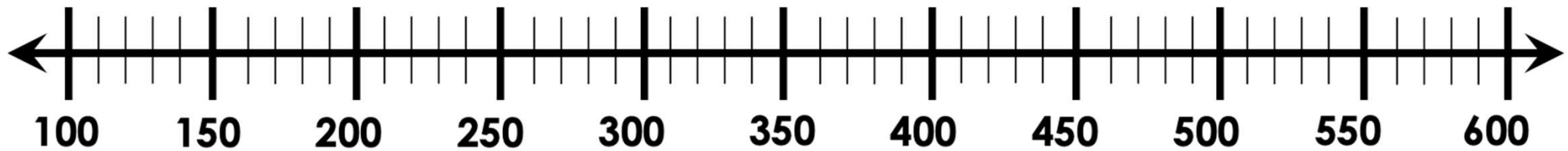
**How did you solve?**



## Problem #1

YOUR TURN

Use the number line to find the sum:  $255 + 145$



Decompose Self-Check

Answer




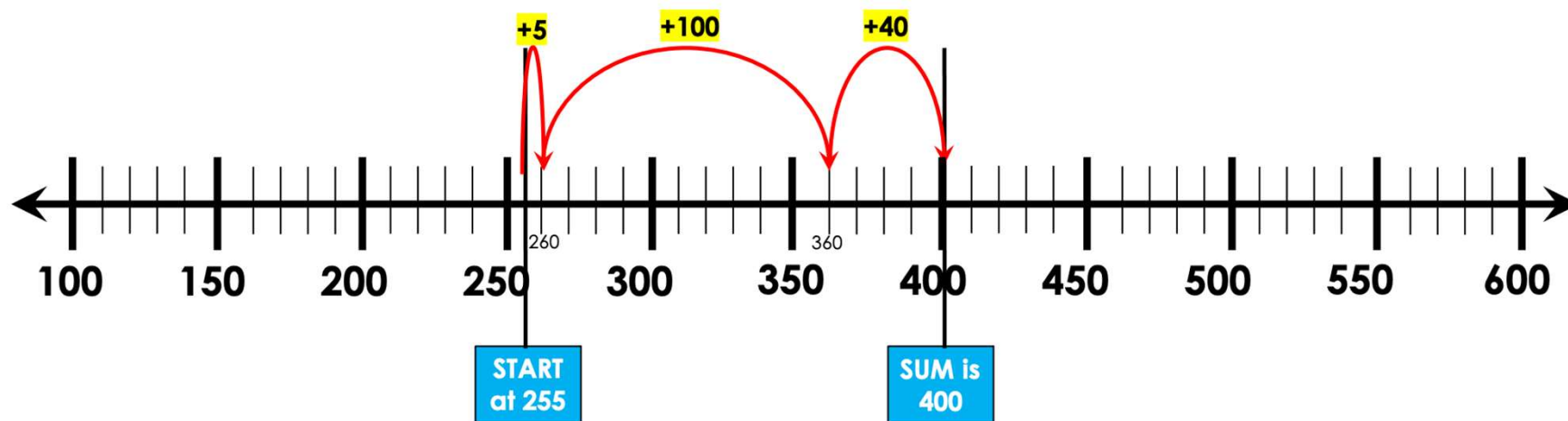


## Problem #1

YOUR TURN

# Use the number line to find the sum: $255 + 145$

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?

Decompose Self-Check

$$5 + 100 + 40 = 145$$

Answer

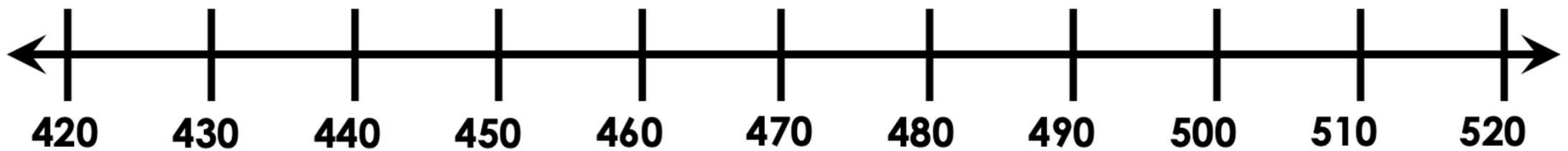
The sum is 400.



## Problem #2

YOUR TURN

**Shelly believes  $459 + 41$  is 500.  
Do you agree or disagree?  
Use the number line to solve.**



Decompose Self-Check

Answer


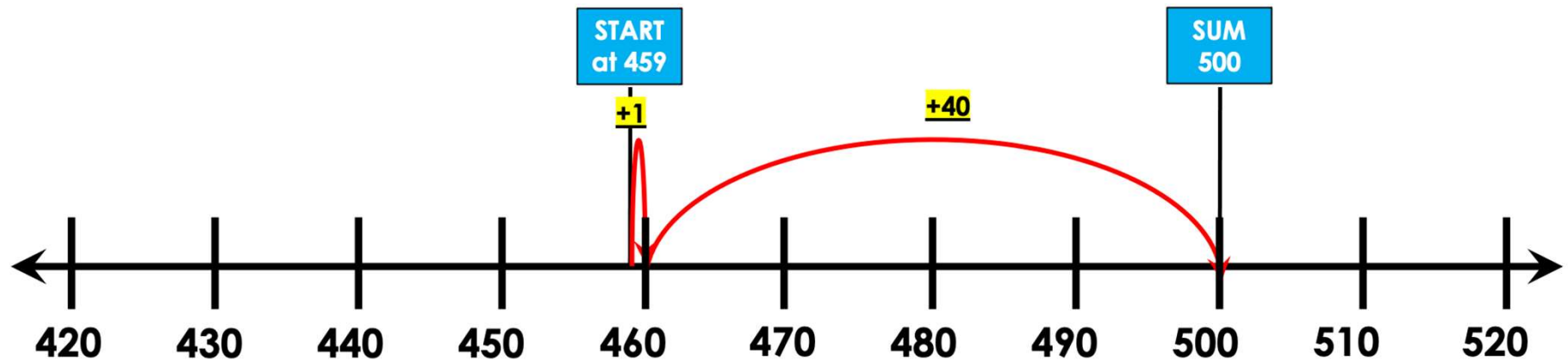


## Problem #2

YOUR TURN

Shelly believes  $459 + 41$  is 500.  
Do you agree or disagree?

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?

Decompose Self-Check

$$1 + 40 = 41$$

Answer

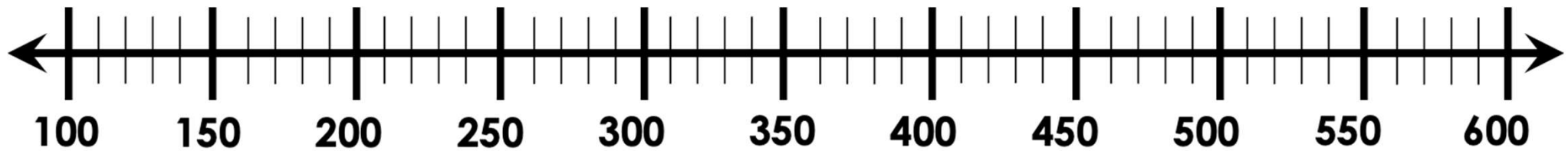
Agree. The sum is 500.



## Problem #3

YOUR TURN

Use the number line to find the sum:  $351 + 229$



Decompose Self-Check

Answer

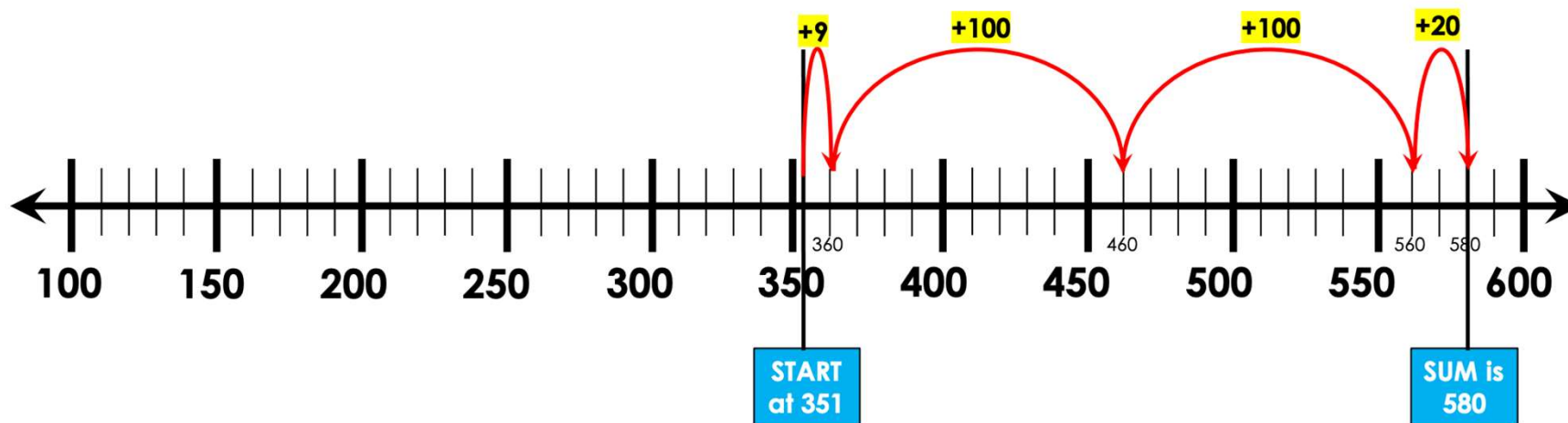


## Problem #3

YOUR TURN

Use the number line to find the sum:  $351 + 229$

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?

Decompose Self-Check

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

Answer

The sum is 580.

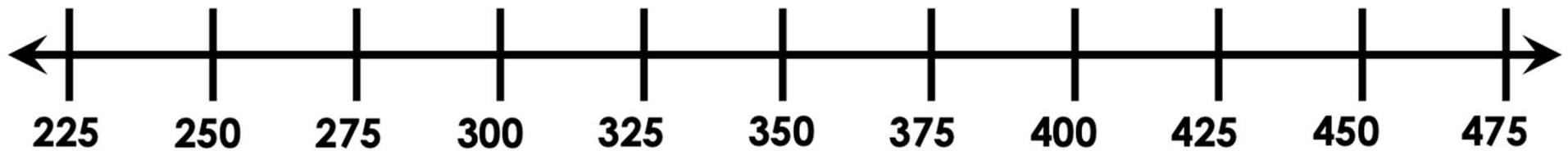


## Problem #4

YOUR TURN

**Maggie drove to New York City. She drove 275 miles and then stopped for a break. Maggie then drove 180 more miles to get there. How many total miles did she travel?**

**Use the number line to solve.**



Decompose Self-Check

Answer


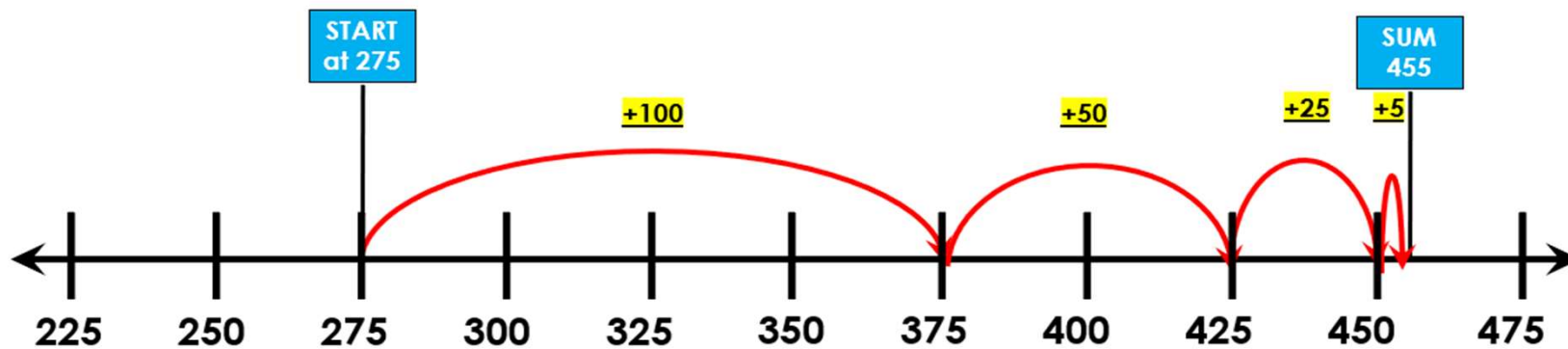


## Problem #4

YOUR TURN

Maggie drove to New York City. She drove 275 miles and then stopped for a break. Maggie then drove 180 more miles to get there. How many total miles did she travel?

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?

Decompose Self-Check

$$100 + 50 + 25 + 5 = 180$$

Answer

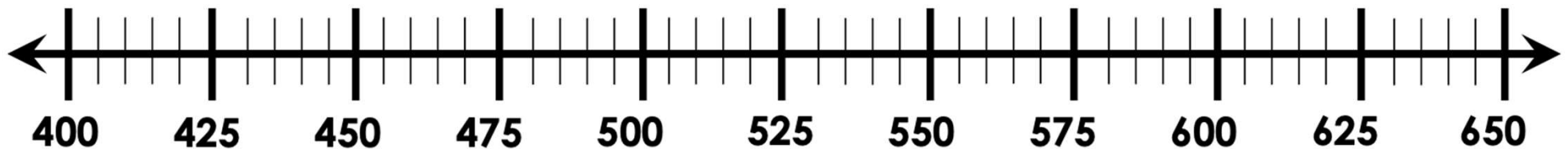
Maggie traveled 455 miles.



## Problem #5

YOUR TURN

Use the number line to find the sum:  $472 + 108$



Decompose Self-Check

Answer



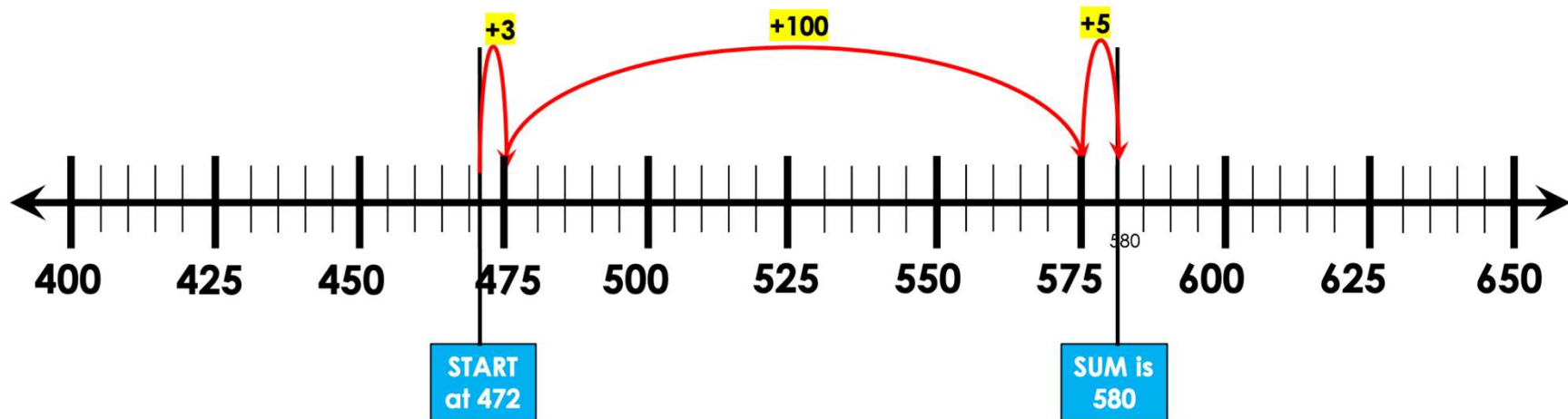


## Problem #5

YOUR TURN

# Find the sum: $472 + 108 = ?$

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?

Decompose Self-Check

$$3 + 100 + 5 = 108$$

Answer

The sum is 580.



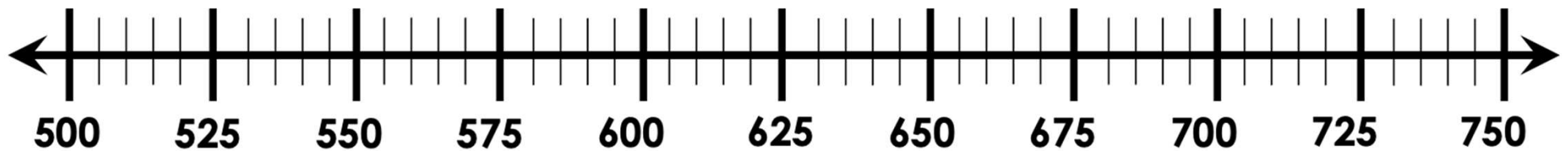
## Problem #6

YOUR TURN

**Cameron believes  $585 + 117$  is 692.**

**Do you agree or disagree?**

**Use the number line to solve.**



Decompose Self-Check

Answer

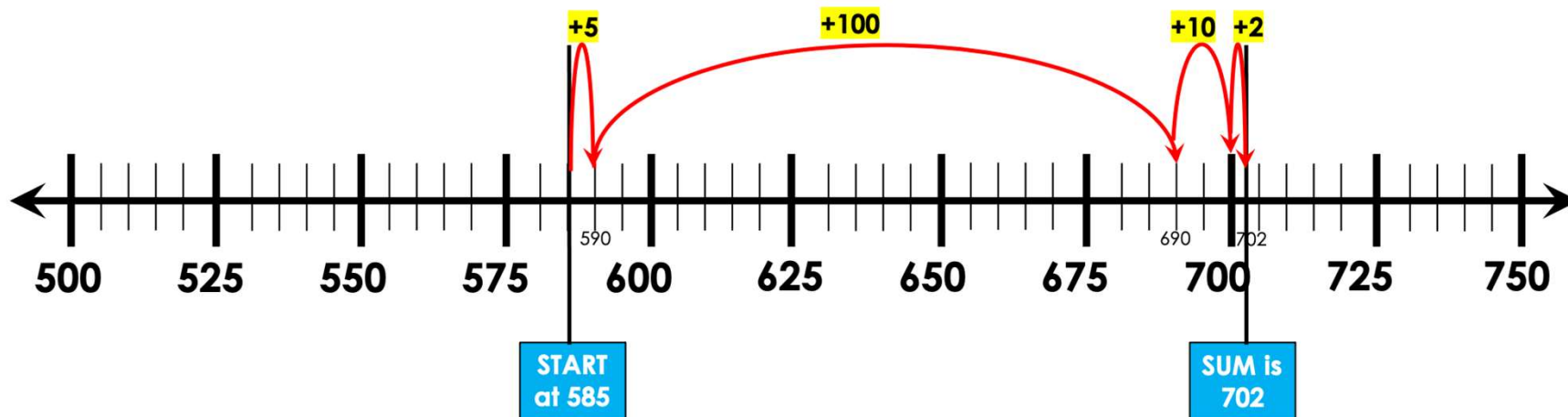


## Problem #6

YOUR TURN

Cameron believes  $585 + 117$  is 692.  
Do you agree or disagree?

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?

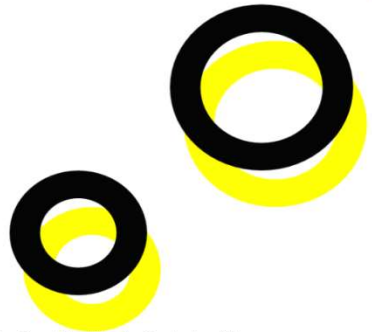
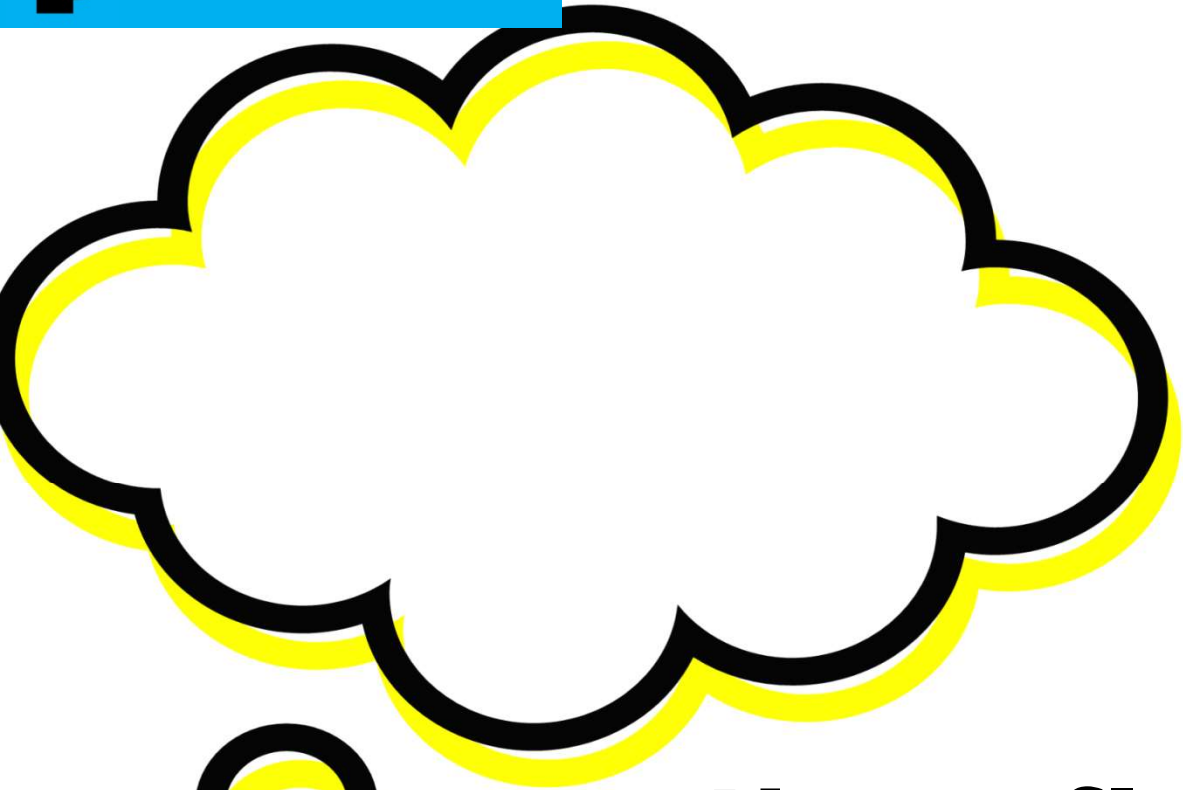
Decompose Self-Check

$$5 + 100 + 10 + 2 = 117$$

Answer

Disagree. The sum is 702.

 **Let's Reflect**



**It's reflection time!**