Warm Up

CST/CAHSEE: 3

Which number has the same digit in both the ones place and the hundreds place?

A 3308

B 4118

C 5977

D 6242

Challenge, write your own 4 digit number with a 5 in the ones place and the hundreds place.

Review: Grade 3

Compare. Write <, >, or = .

9,824 ◯ 9,861

Prove your answer using a *place value chart* and *expanded form*.

Place Value Chart

Expanded Form

Current: Grade 2- 3

Make as many 3 digit numbers as you can with these digits:

9, 0, 4

When Done: Write 3 of the numbers you made in order from greatest to least.

Other: Grade 2- 3

Which of the following has a value of 579? Hint: There is more than one answer!

A 500 + 7 + 9

B 400 + 100 + 40 + 30 + 9

C 9 + 70 + 500

D 300 + 270 + 9

E 279 + 300

Challenge: Write other ways to make 579.

Quad II: CST/CAHSEE Grade 3
Which number has the same digit in both the ones place and the hundreds place?
A 3308
B 4118
C 5977
D 6242
Challenge, write your own 4 digit number with a 5 in the ones place and the hundreds place.*(Answers vary)*

Debrief: *Take a survey of which answers students chose. Work out each problem chosen, proving that 6242 is correct. Ask, "Why is answer choice A not correct?" Think Pair Share why you think A is not correct. One person share out. (Possible answer…because there's a 3 in the hundreds and 8 in the ones." Why do you think someone might choose A? Think Pair Share. Possible answer, "Because there's a 3 in the hundreds and thousands."* ***Is it important to read the question carefully?*** *(Of course!)*

Quad I: Review Grade 3
Compare. Write <, >, or = .

9,824 ◯ 9,861

Prove your answer using a *place value chart* and *expanded form*.

Place Value Chart

TH	H	T	O
3	5	0	1
3	0	5	1

Expanded Form

3,000 + 500 + 0 + 1
3,000 + 0 + 50 + 1

Debrief: *Have a student share his/her work on the document reader. He/she may need prompting. Any time a student debriefs a problem, it's a chance to develop math vocabulary. When the student is done, you can ask a probing question such as, "9,824 has 4 ones and 9,861 only has 1 one. Why isn't 9,824 greater?"*

Quad III: Current Grade 2-3
Make as many 3 digit numbers as you can with these digits:

9, 0, 4

Four Possible Answers:
904 *409*
940 *490*

When Done: Write 3 of the numbers you made in order from greatest to least. (*Example)*

G 940 _____ 904 _____ 409 _____ **L**

Debrief: *Have a student share his/her work on the document reader. Watch for examples like 049 and 094. "Why is 094 not a really a 3 digit number?" Think Pair Share. If there is a 0 in the hundreds place, for that number, does it add value to the number? (no) So really that's just a 2 digit number. The 0 in the hundreds is important if there is a digit in the thousands place: Example; 1,094.*

Quad IV: Other Grade 2-3
Which of the following has a value of 579? Hint: There is more than one answer!

A 500 + 7 + 9
B 400 + 100 + 40 + 30 + 9
C 9 + 70 + 500
D 300 + 270 + 9
E 279 + 300

Challenge: Write other ways to make 579.
(Answers vary: Example: 200 + 300 + 70 + 9)

Debrief: *If the students have not had this kind of multiple choice question before, it's good exposure for them. Take a survey of answers students chose. Find the sum of each answer to prove that it is 579 or not 579. A student that worked out the sums can show work on the document reader.*

Plotting Numbers on a Number Line: Grades 2 -3

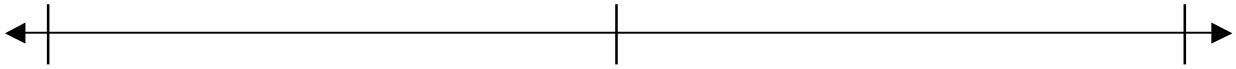
(In this lesson, the teacher models making a number line by setting up the whole (0 to 10, 1 to 100, 1 to 1,000), finding the midpoint, and marking off smaller sections from there. They then choose the appropriate number line to plot 3 digit numbers on. Students are allowed time to figure out spacing and develop confidence while exploring the base ten system.)

Today you are going to plot numbers on a number line. That means you will draw your own number line, and then mark the points where the numbers go on the line.

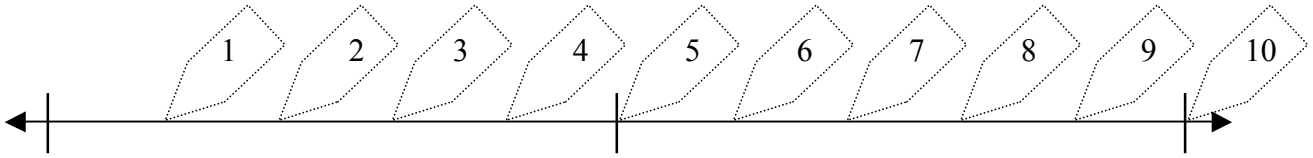
Watch carefully how I make these number lines, so you can be ready when it's your turn.

First I'm going to use a ruler or straight edge to draw a line all the way across the page. I want to have room to write in the numbers.

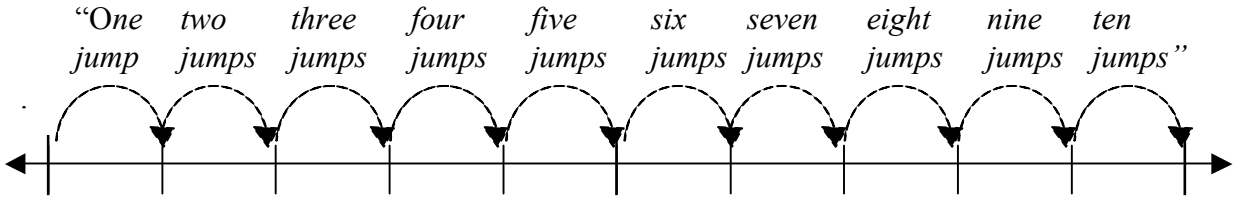
I want to make a number line with 10 sections or jumps.
I mark my starting point and ending point. Now I need a halfway mark. Does that look pretty close? Does it have to be perfect? (no) It just needs to be kind of close.



Now we have 2 sections, or jumps. Let's turn them into 10.
Use your pencil to "plan" where you will place the tic marks.
Here's 1, 2, 3, 4, (5), 6, 7 8, 9 and (10).

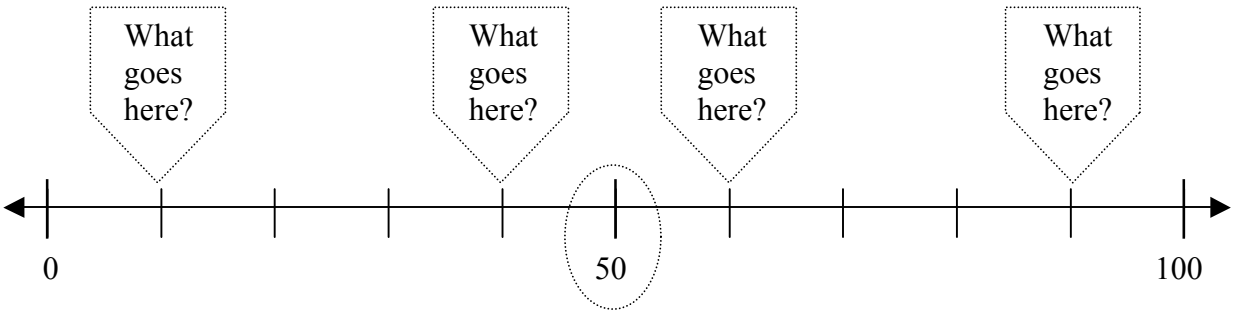


Remember that it's okay if the spaces aren't perfect.
Finally, I can put in my tic marks. Let's count the sections, or jumps to be sure. (The jumps can be lightly done or on a transparency so that they can be easily removed afterwards, leaving the number line.)

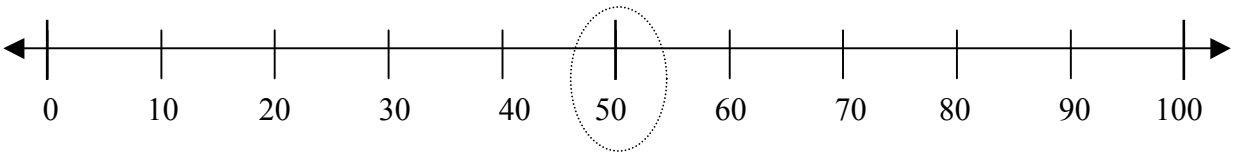


What if we start with a 0 and end with 100? What would each tic mark be worth? Think…. Share with your partner. (Listen for responses.) Thumbs up if you have it. Everyone share.(10). Let's test it. (Count out by 10, pointing at each tic mark.) Yes it works. By the way, did you know that another name for 100 is 10 tens? Thumbs up if that makes sense. I always like to circle the halfway point. What is half of 100? (50).

Before I mark all the numbers, I'm going to test you….
(Randomly choose tic marks for the students to name the value.)



Very good. You could tell me the values without seeing all the numbers. For now, we are going to write in all the numbers that go with the tic marks.



Thumbs up if you are ready to make your own number line.

Title your page, Plotting Numbers on a Number Line. Skip 3 spaces to give yourself room. Then use your ruler to draw a straight line across the whole page.

Mark your beginning point and your ending point (0 and 100).

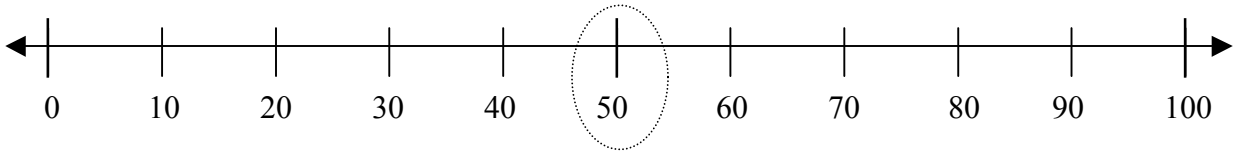
What do we do after we have the beginning and ending points? Think….Share with your neighbor….Thumbs up if you know… Everyone share. (Mark the halfway point.)

Then we need a place for 10, 20, 30……90. (model as before). Go ahead and mark your spaces and your numbers. (Monitor and help students.)

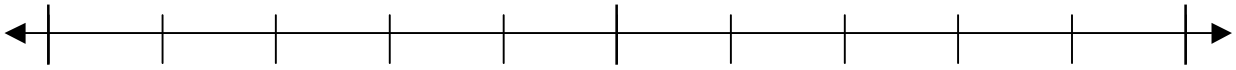
(As most finish…)What is halfway between 0 and 100 again? (50). Circle 50, our halfway point.

Student notes so far:

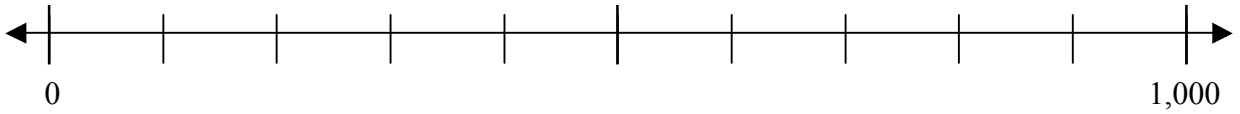
Plotting Numbers on a Number Line



I think you are ready for another number line. *(Establish another number line using the same method as before, --endpoints, halfway mark, and tic marks in between—with or without the verbal prompts.)*



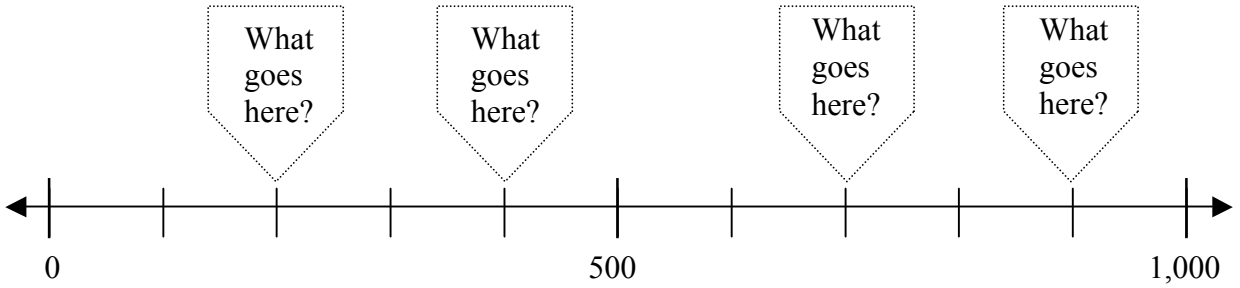
I have the same number of sections/jumps as before, but this time I am starting at 0 and ending at 1,000.



How much is each tic mark worth now? Think….Share with your neighbor. Thumbs up if you know…Everyone share. (100). *If they suggest something other than 100, (like maybe 10), then test it out by counting by 10s (10, 20, 30, 40, 50, 60, 70, 80, 90, 1,000????? That doesn't work!)*

Let's try out a hundred at a time.…100, 200, 300……1,000. Some of you said 10 hundreds. Raise your hand if they are both correct. Yes, they are both correct because there are 10 hundreds in 1,000.

Time for your test. Let's just mark the half way point. What is half of 1,000? (500). Okay. *(Randomly choose tic marks for students to guess the value.)*



Very good… Now I add in the values and circle the halfway mark.

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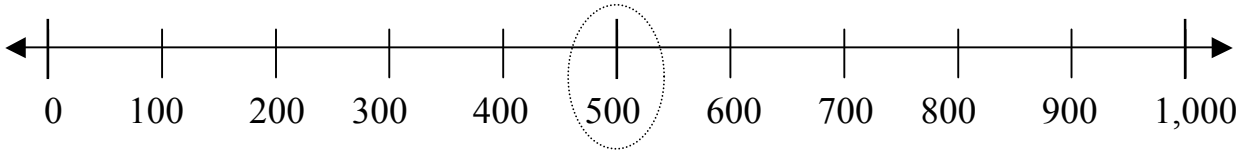
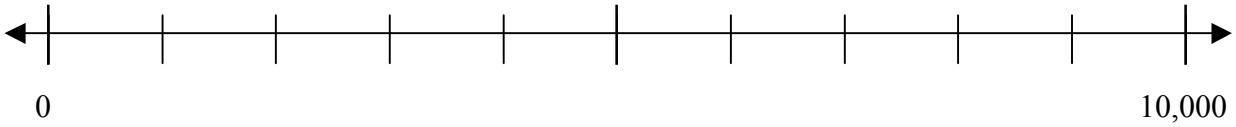


You Try: Now skip 3 or 4 spaces, and you make a number line from 0 to 1,000, just like mine.

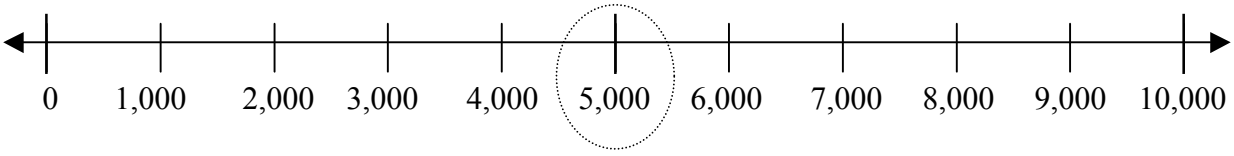
Students now have 2 number lines in their notes.

We have one more number line to make today. *(Establish another number line using the same method as before, --endpoints, halfway mark, and tic marks in between—with or without the verbal prompts.)* This time we are starting at 0 and ending at 10,000.



Can you make this number line by yourself? What is half way between 0 and 10,000? (5,000). How much is each tic mark worth? (1,000) Okay. Skip 3 or 4 lines. Make your number line.

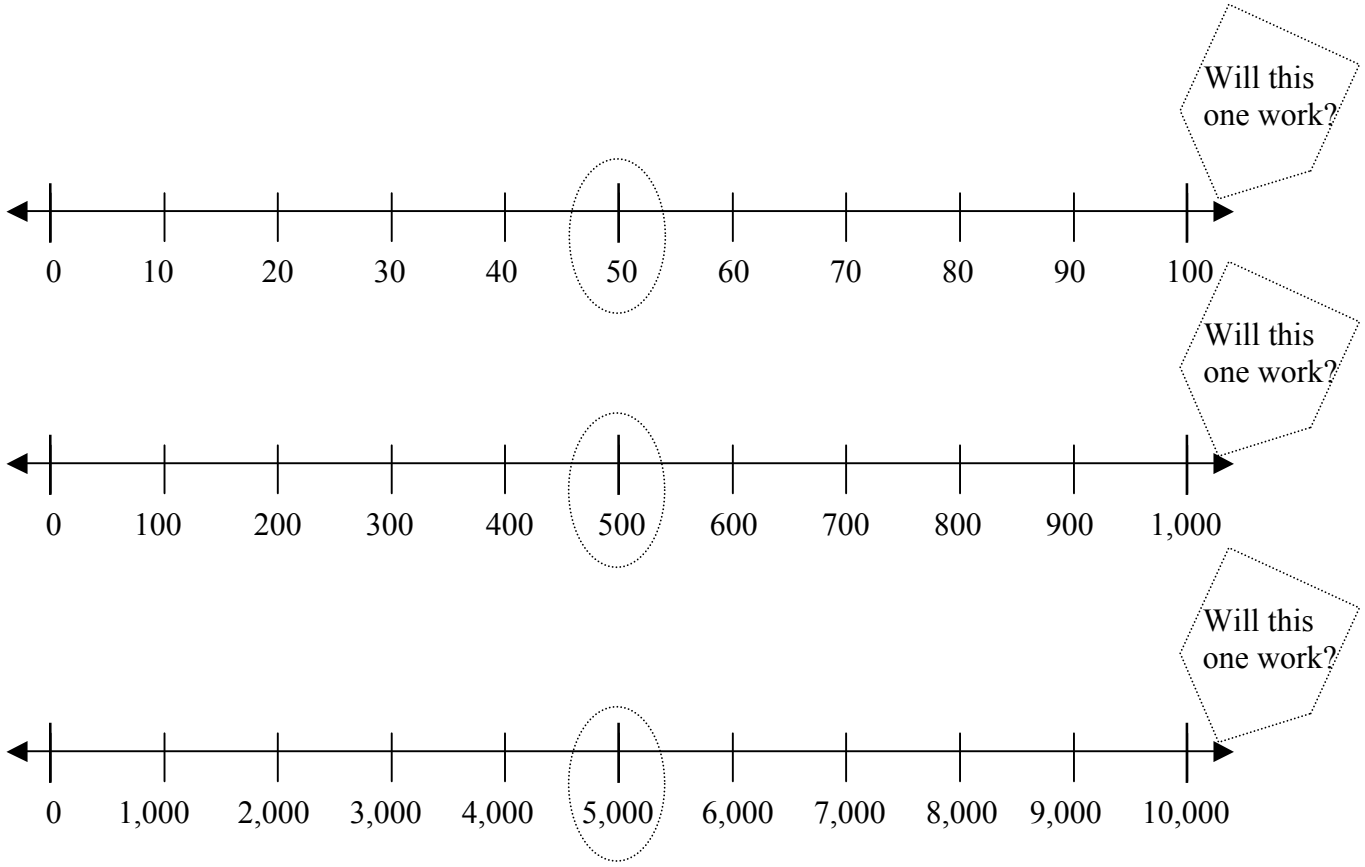
Debrief: Raise your hand if you remembered to mark the halfway point.



NOW we get to plot numbers on the number lines. Plotting is when we put points where the numbers go.

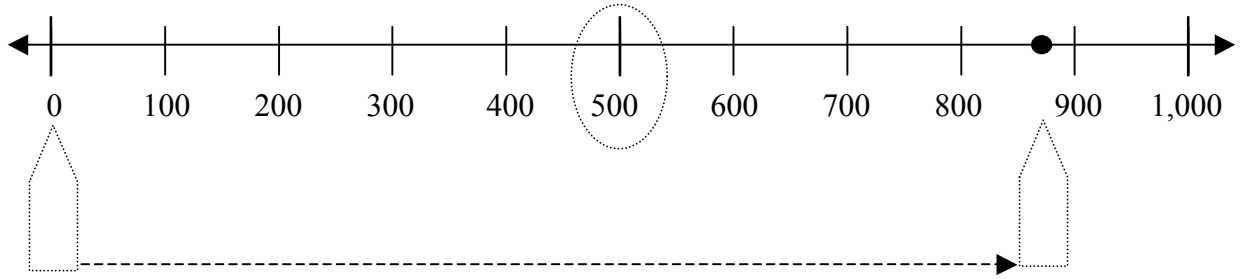
First we will plot 873 together.

Be sure the students can see all three number lines you have made together. Point to each line as you ask, " If we want to plot 873, which number line will work? The top? Middle? Bottom?"



I need a quiet hand to share why the top one won't work. (ends at 100)

(Some will say it is not on the second one because they can't see it written.)
Let's try the second one. Raise your hadn when I pass by 873.



Start at zero. Run finger along the number line until students raise their hands, signaling you to stop. Then plot the point.

Now we can plot 873 on the number line (not above it.) Check with your neighbor to be sure he/she is correct.

Most students will be able to plot points at least between the correct hundreds. Watch for those that place 873 before 800. Do more together if needed.

Thumbs up if you think you can plot your own points on the number line.

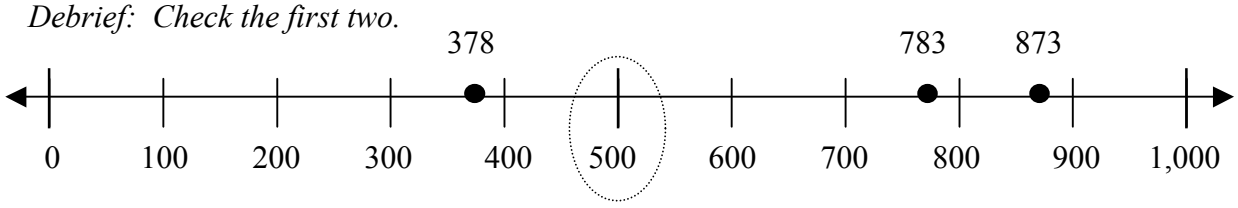
Here are some You Tries. Do them in order. IF you finish early, check your neighbor's work. Then make up your own numbers to plot. You are never, ever, done.

You Tries: Plot 378 and 783

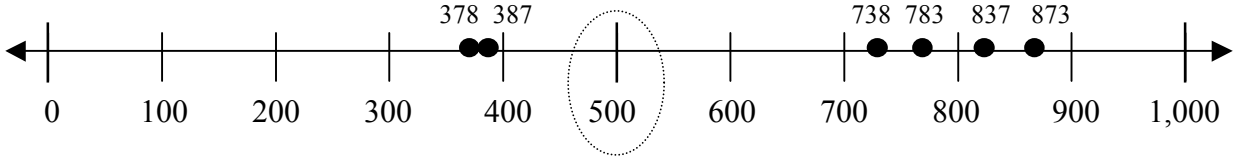
Extra You Tries: Plot 837, 738, and 387. If you finish early, make up your own numbers to plot on the number line.

Monitor student work. It's not important that they finish all the you tries, but that they are accurate with tat least 2 on their own.

Debrief: Check the first two.



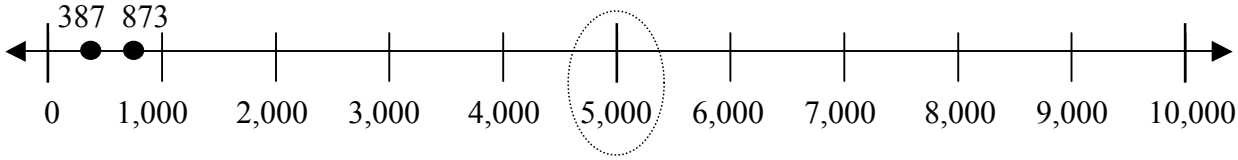
For those that did all the you You Tries.



By the way, the third number line can also work.

Is 0 less than 873? (yes)
Is 1,000 greater than 873? (yes)
Then we can plot it between 0 and 1,000, even if the space is smaller.
Isn't the number line we used from 0 to 1,000? (yes)
On the third number line, that space is just made smaller.

Do you think 873 is going to be closer to 0 or 1,000? (1,000)
Raise your hand when I get to 873. *(Same method as before.)* Now you plot 873 on your line?
What about 387? Closer to 0 or 1,000? (0)



Which number line is better for these numbers, the 0 to 1,000 or 0 to 10,000?

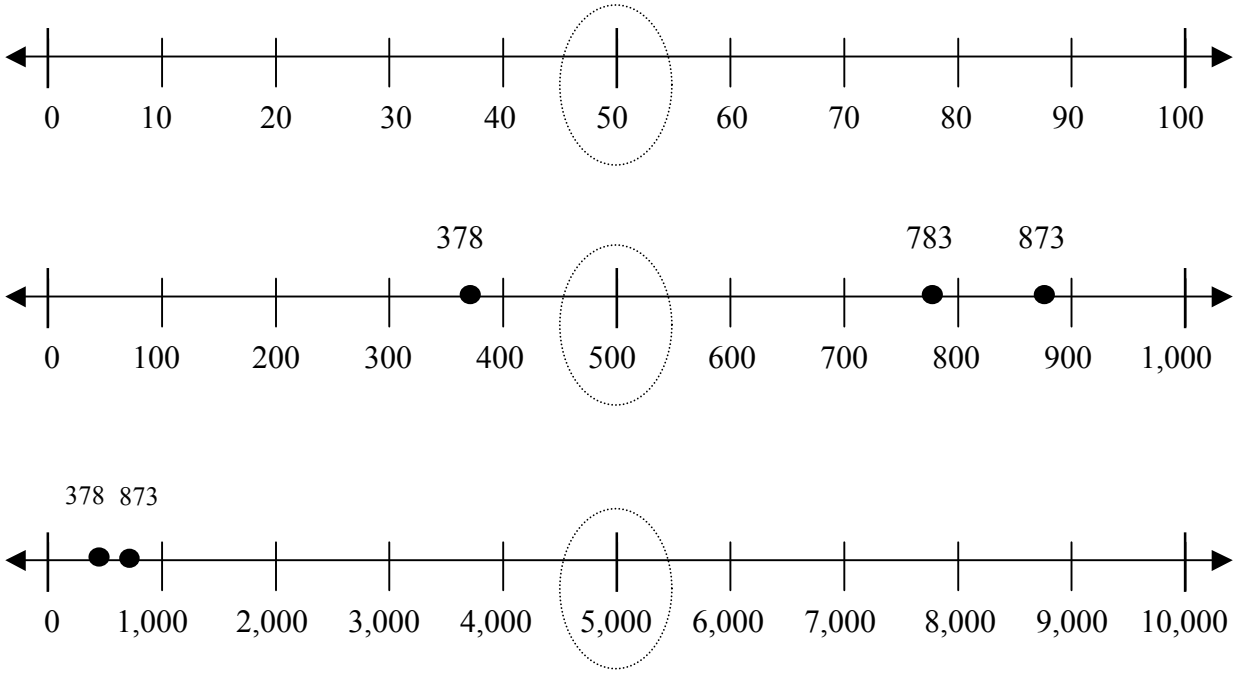
Think….Share with your neighbor….Quiet hand to share. (answers vary)

You have done a lot of good work today. Raise your hand if you learned something new.

I enjoyed working with you!

Final Student Notes:

Plotting Numbers on a Number Line



Plot 873, 387, 783.