

Double Digit Addition Strategies With Regrouping!



Addition Poem

Adds up to 9,
everything is
fine! →

$$\begin{array}{|c|c|c|} \hline 6 & 3 & 1 \\ + & 2 & 3 & 6 \\ \hline 8 & 6 & 7 \\ \hline \end{array}$$

Regrouping

10 or more,
take the extra
next door! →

$$\begin{array}{|c|c|c|} \hline & 1 & \\ 3 & 0 & 9 \\ + & 1 & 2 & 4 \\ \hline 4 & 3 & 3 \\ \hline \end{array}$$

Addition using the Traditional Algorithm

Addition using the Traditional Algorithm

Step 1

$$48 + 36 =$$

Take your number sentence that is horizontally written and write it vertically like seen on this slide.

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array}$$

Addition using the Traditional Algorithm

Step 2

$$48 + 36 =$$

Now, if it helps you, draw your place value chart over your algorithm.

Draw a box in the tens place in case you have to regroup.

The diagram shows the traditional addition of 48 and 36. The numbers are aligned by place value, with a vertical red line separating the tens and ones columns. Above the columns are the labels 'T' for Tens and 'O' for Ones. A red box is drawn in the tens column, spanning the space between the two numbers, to indicate where regrouping should occur. The numbers are written in white on a dark green background, and a horizontal line is drawn under the bottom number, 36.

$$\begin{array}{r|l} \text{T} & \text{O} \\ \hline & \\ 48 & \\ + 36 & \\ \hline \end{array}$$

Addition using the Traditional Algorithm

Step 3

$$48 + 36 =$$

START IN THE **ONES** PLACE

Add $8 + 6$, you should get 14.

A “siren” should go off because we have “10 or more” so we need to take the ten next door!

$$\begin{array}{r|l} \text{T} & \text{O} \\ \hline & \\ 48 & \\ + 36 & \\ \hline & 14 \end{array}$$

Addition using the Traditional Algorithm

Step 4

$$48 + 36 =$$

The 1 in 14 is in the Tens place!

Move the one into the tens place
(in that box you created).

The diagram illustrates the traditional addition algorithm for $48 + 36$. The numbers are stacked vertically with a horizontal line below the bottom number. The tens place is labeled 'T' and the ones place is labeled 'O'. A red box is drawn around the tens place of the sum, and a yellow arrow points from the ones place of the sum to the tens place of the sum. The sum is shown as 14, with the 1 in the tens place circled in yellow.

	T	O
48		
+ 36		
<hr/>		
14		

Addition using the Traditional Algorithm

Step 5

$$48 + 36 =$$

Now your problem should look similar to this!

$$\begin{array}{r} \text{T} \quad \text{O} \\ \hline 1 \\ 48 \\ + 36 \\ \hline 84 \end{array}$$

Addition using the Traditional Algorithm

Step 6

$$48 + 36 =$$

Now you are going to add up ALL
OF THE TENS! (DO NOT
FORGET THE 1 THAT YOU
CARRIED OVER!)

You should get 8!

TO

$$\begin{array}{r} 1 \\ 48 \\ + 36 \\ \hline 84 \end{array}$$

Addition using the Traditional Algorithm

Step 6

$$48 + 36 =$$

Now combine your tens and ones!

The solution to your problem should be 84!

The image shows the traditional addition algorithm for 48 + 36. The numbers are stacked vertically with a red vertical line separating the tens and ones columns. Above the tens column is a 'T' and above the ones column is an 'O'. A red box highlights the '1' in the tens column, which is the result of carrying over from the ones column. The numbers 48 and 36 are written in white. A horizontal line is drawn below the 36. The result 84 is written in blue below the horizontal line and is circled in yellow.

$$\begin{array}{r|l} \text{T} & \text{O} \\ \hline 1 & \\ 48 & \\ + 36 & \\ \hline 84 & \end{array}$$

Addition using Base 10 Blocks






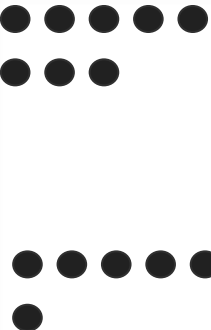
Addition using Base 10 Blocks

Step 1

$$48 + 36 =$$

Draw base 10 blocks of **both** numbers. It works well when you use a **place value chart** to help you organize the numbers.

+

			
thousands	hundreds	tens	ones
			

Addition using Base 10 Blocks

Step 2

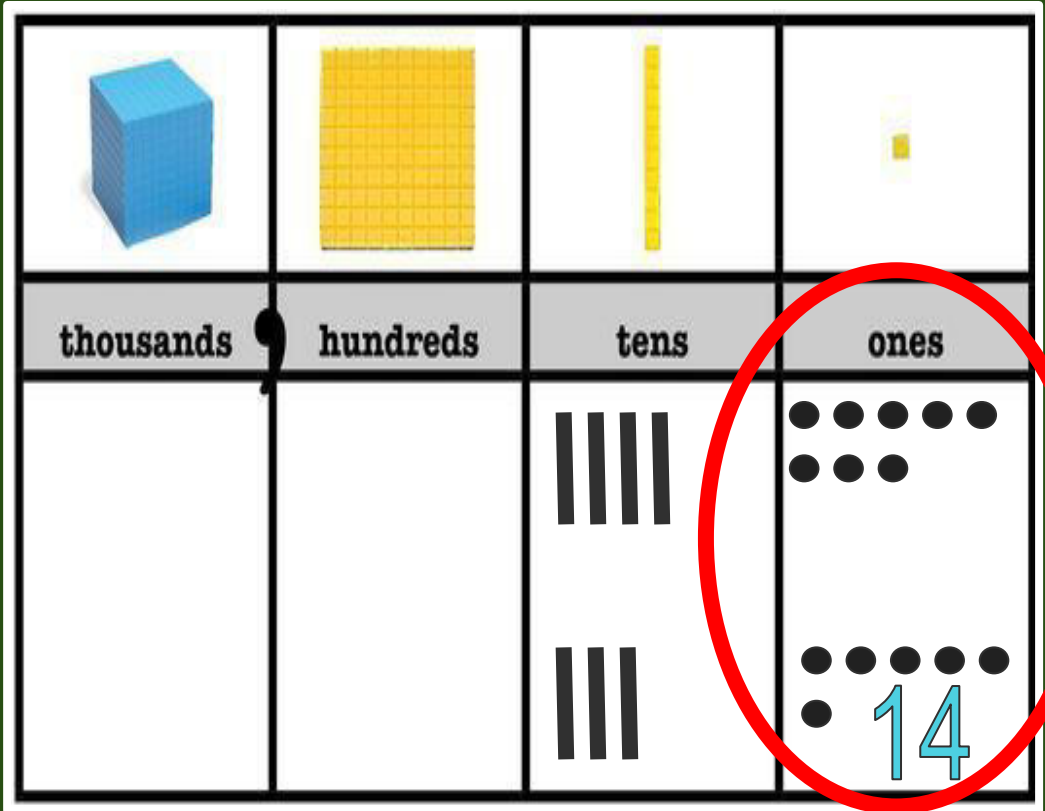
$$48 + 36 =$$

START IN THE **ONES** PLACE!

Add up all of the ones.

A “siren” should go off because we have “10 or more” so we need to take the ten next door!

+



Addition using Base 10 Blocks

Step 3

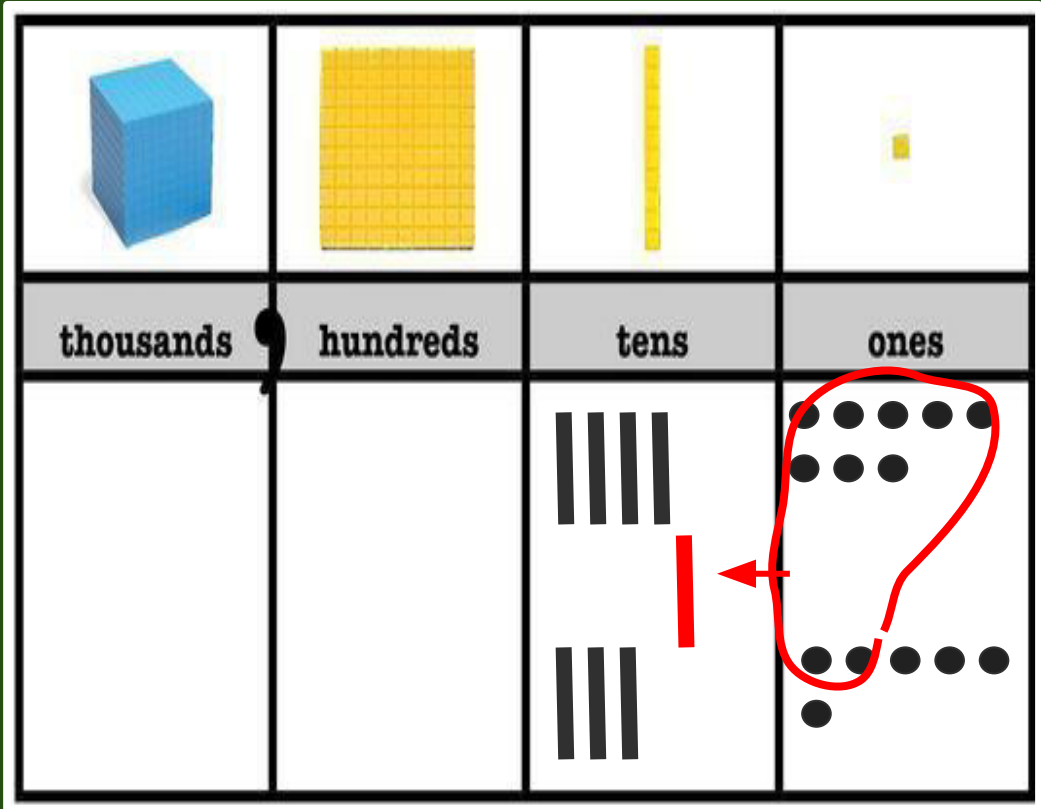
$$48 + 36 =$$

Put together 10 ones

Form them into a ten stick

Move them on "next door" to
the tens place.

+



Addition using Base 10 Blocks

Step 4










$$48 + 36 =$$

Now count how many ones you have left over.

You should have 4!

Now you are done working in the ones place, you can check it off and move onto the tens.

+

			
thousands	hundreds	tens	ones
		  	 

Addition using Base 10 Blocks

Step 4

$$48 + 36 =$$

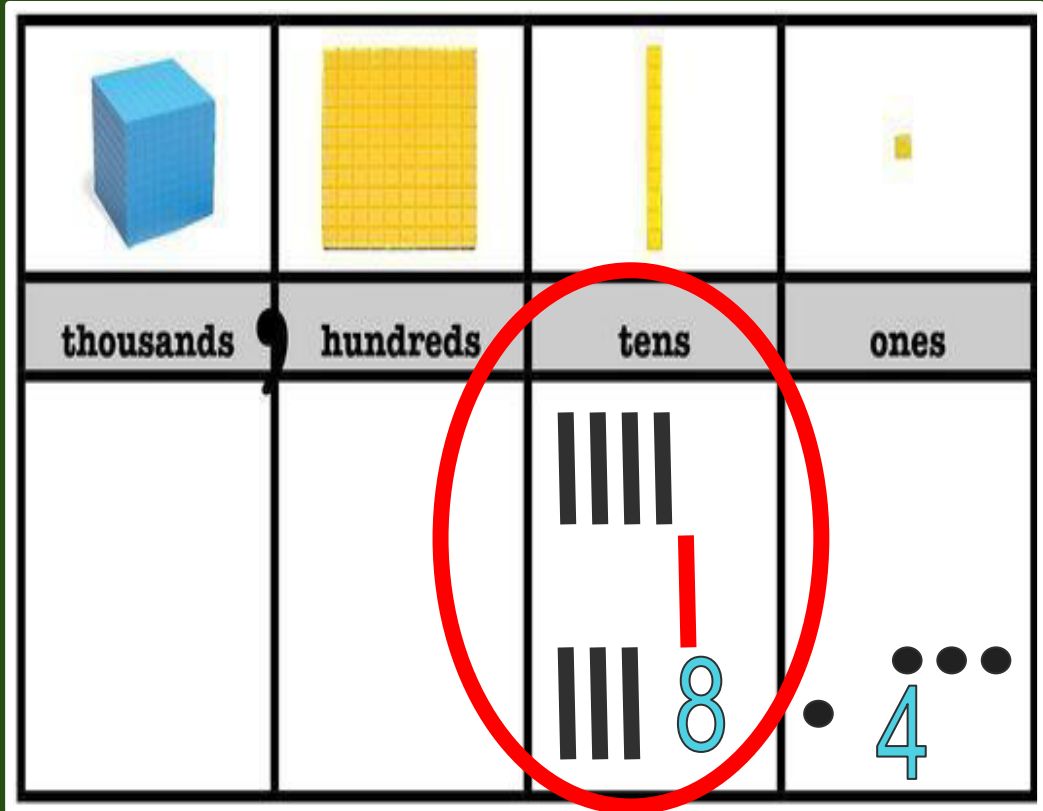
Next, add up ALL of the TENS.

Do not forget to add the one that you regrouped from the ones place!

You should of got 8 tens!

Since the answer is below nine, everything is fine!

+



Addition using Base 10 Blocks

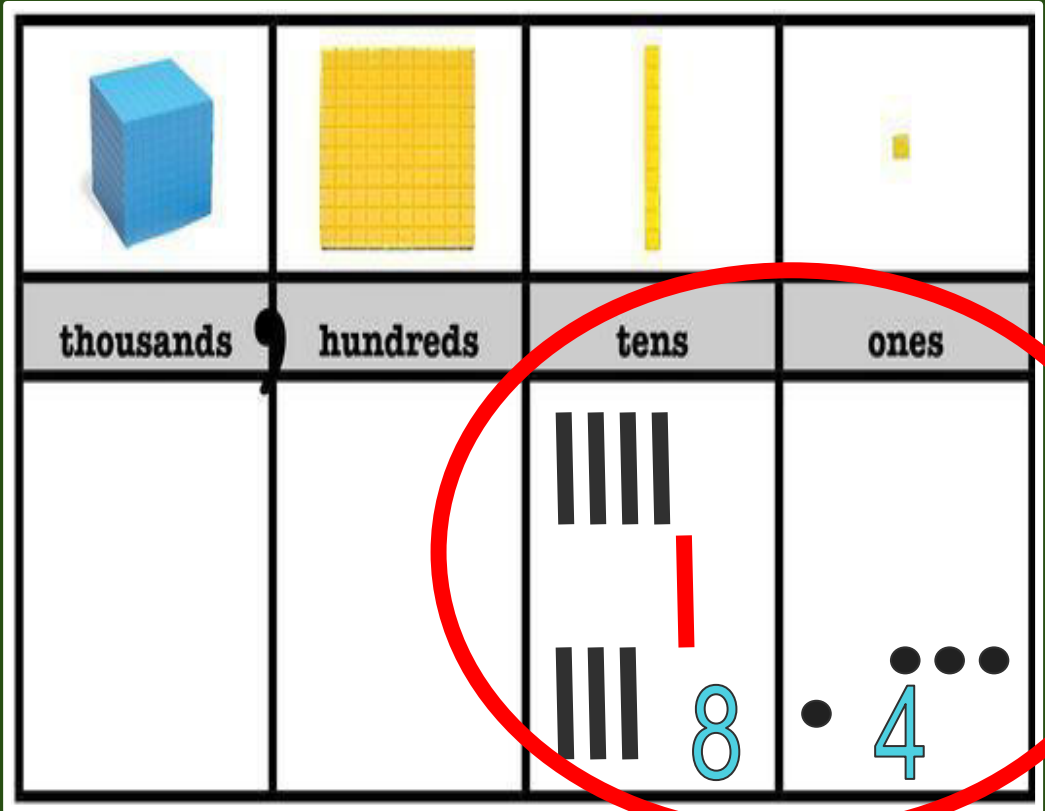
Step 4

$$48 + 36 =$$

Now put the tens and ones together!

You should get 84!

+



Addition using Expanded Form Option 1

Addition using Expanded Form (Option 1)

Step 1

$$48 + 36 =$$

Take your number sentence that is horizontally written and write it vertically like seen on this slide.

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array}$$

Addition using Expanded Form (Option 1)

Step 2

$$48 + 36 =$$

Next you are going to take your numbers and **EXPAND THEM OUT** into **tens** and **ones**!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 + 8 \\ 30 + 6 \\ \hline \end{array}$$

Addition using Expanded Form (Option 1)

Step 3

$$48 + 36 =$$

Combine your **ones**
together!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 \\ + 30 \\ \hline \end{array} + \begin{array}{r} 8 \\ + 6 \\ \hline 14 \end{array}$$

Addition using Expanded Form (Option 1)

Step 4

$$48 + 36 =$$

Next, combine your **tens** together!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 \\ + 30 \\ \hline 70 \end{array} + \begin{array}{r} 8 \\ + 6 \\ \hline 14 \end{array}$$

Addition using Expanded Form (Option 1)

Step 5

$$48 + 36 =$$

You should notice that your ones now are more than "9."

So you are going to expand 14 out to tens and ones.

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 + 8 \\ + 30 + 6 \\ \hline 70 + 14 \end{array}$$

The 14 is expanded into 10 and 4:

$$\begin{array}{c} \swarrow \searrow \\ \textcircled{10} \quad \textcircled{4} \end{array}$$

Addition using Expanded Form (Option 1)

Step 6

$$48 + 36 =$$

Now combine the 10 from
the 14 with the 70.

You should get 80.

$$\begin{array}{r} 48 \rightarrow 40 + 8 \\ + 36 \rightarrow + 30 + 6 \\ \hline 70 + 14 \\ \hline 80 + 4 \end{array}$$

The diagram illustrates the final step of the addition process. It shows the combination of 70 and 10 to get 80, and the remaining 4. A yellow oval highlights the 80 and the 10 from the previous step.

Addition using Expanded Form (Option 1)

Step 7

$$48 + 36 =$$

Now you have $80 + 4$.

Combine the tens and the ones to get 84!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 + 8 \\ + 30 + 6 \\ \hline 70 + 14 \end{array}$$

84

$$80 + 4$$

Addition using Expanded Form

Option 2

Addition using Expanded Form (Option 2)

Step 1

$$48 + 36 =$$

Take your number sentence that is horizontally written and write it vertically like seen on this slide.

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array}$$

Addition using Expanded Form (Option 2)

Step 2

$$48 + 36 =$$

Next you are going to take your numbers and **EXPAND THEM OUT** into **tens** and **ones**!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 + 8 \\ 30 + 6 \\ \hline \end{array}$$

Addition using Expanded Form (Option 2)

Step 3

$$48 + 36 =$$

Combine your **ones**
together!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 40 \\ + 30 \\ \hline \end{array} + \begin{array}{r} 8 \\ + 6 \\ \hline 14 \end{array}$$

Addition using Expanded Form (Option 2)

Step 4

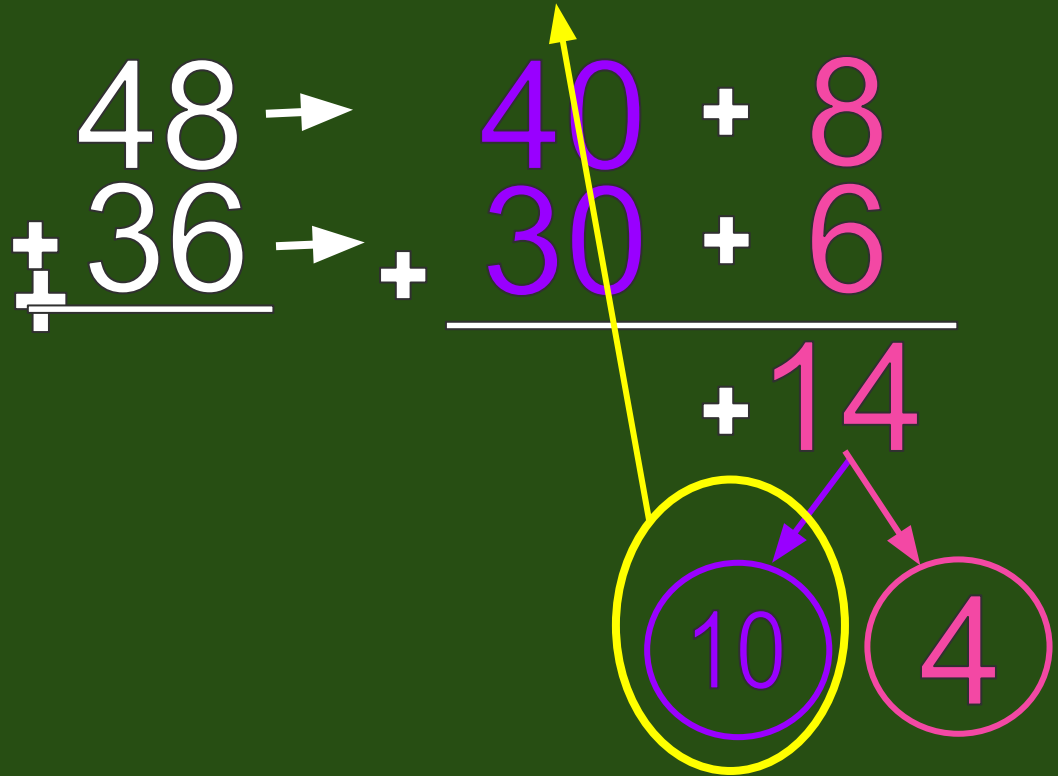
$$48 + 36 =$$

You should see that you have more than 9 in your tens!

Expand 14

Take the tens place of 14 and move that ten to be with the other tens!

You should have 4 left over.



Addition using Expanded Form (Option 2)

Step 5

$$48 + 36 =$$

Now your problem should look like this.

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 10 \\ 40 \\ + 30 \\ \hline \end{array} + \begin{array}{r} 8 \\ + 6 \\ + 4 \end{array}$$

Addition using Expanded Form (Option 1)

Step 6

$$48 + 36 =$$

Now combine the tens.

Be sure not to forget the ten
that you added!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 10 \\ 40 \\ + 30 \\ \hline 80 \end{array} + \begin{array}{r} 8 \\ + 6 \\ \hline 14 \end{array}$$

Addition using Expanded Form (Option 1)

Step 7

$$48 + 36 =$$

Now combine the final tens
with the final ones.

You should get 84!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 10 \\ 40 + 8 \\ 30 + 6 \\ \hline 70 + 14 \\ \hline 84 \end{array}$$

Addition using an Open Number Line

Addition using an Open Number Line

Step 1

$$48 + 36 =$$

Draw an Open Number Line



Addition using an Open Number Line

Step 2

$$48 + 36 =$$

Put the first number at the beginning of line.



Addition using an Open Number Line

Step 3

$$48 + 36 =$$

Expand 36 into 30 + 6

$$36 = 30 + 6$$



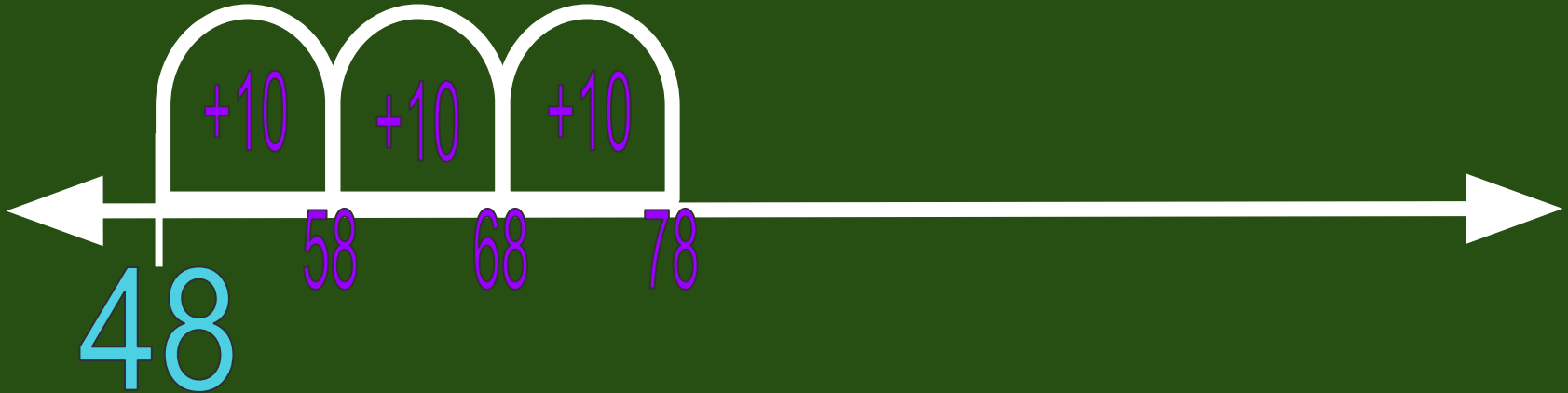
Addition using an Open Number Line

Step 4

$$48 + 36 =$$

Add 30 by each 10 as seen below

$$36 = 30 + 6$$



Addition using an Open Number Line

Step 5

$$48 + 36 =$$

Now add the 6 by 1's as seen below.

You should get a solution of 84!

$$36 = 30 + 6$$

