

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 algorithm for $48 + 36$. A vertical red line separates the tens and ones columns. Above the line, the word "TENS" is written in large, dark letters. Below the line, the word "ONES" is written in large, dark letters. The numbers 48 and 36 are written in large, dark digits. A white plus sign is to the left of the numbers. A red box is drawn around the 4 in the tens place of 48. A horizontal white line is drawn under the ones column.

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

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!

The diagram illustrates the traditional addition algorithm for $48 + 36$. The numbers are stacked vertically with a red vertical line separating the tens and ones columns. A red box highlights the ones column, indicating the current step. The sum of the ones column, 14, is written below the line. The tens column shows the digits 4 and 3, with a plus sign to the left. The word "TENS" is written above the tens column.

TENS	ONES
4	8
+	6
<hr/>	
	14

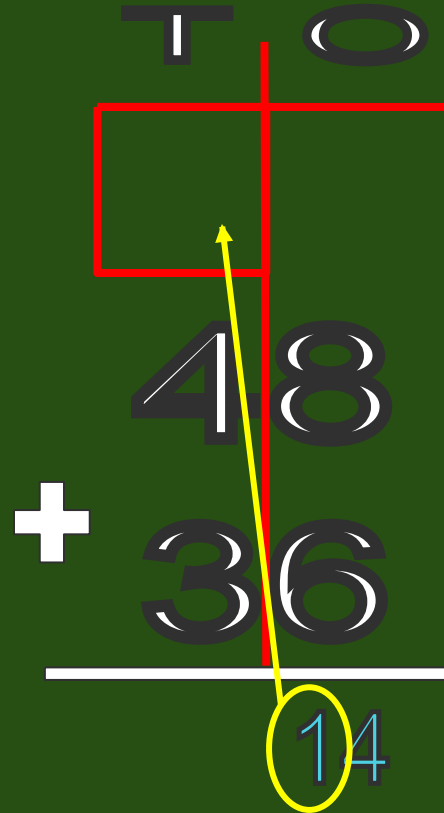
Addition using the Traditional Algorithm

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).



Addition using the Traditional Algorithm

Step 5

$$48 + 36 =$$

Now your problem should look similar to this!

$$\begin{array}{r} \text{T} \quad \text{O} \\ 48 \\ + 36 \\ \hline 4 \quad 86 \end{array}$$

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!

The diagram illustrates the final step of the traditional addition algorithm for 48 + 36. The numbers are stacked vertically with a horizontal line below the bottom number. The tens column (4 and 3) is circled in yellow, and the ones column (8 and 6) is enclosed in a red box. A red '1' is written in the tens column above the line, representing the carry-over from the previous step. The final sum, 84, is written below the line, with the '8' in the tens column and the '4' in the ones column.

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

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 aligned by place value, with a vertical red 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 a '1' in the tens column, representing the carry from the previous step. The numbers 48 and 36 are written in large, bold, black digits. A white plus sign is to the left of the 36. A horizontal white line is drawn below the numbers. The result, 84, is written below the line. The '8' is in the tens column and the '4' is in the ones column. A yellow oval highlights the final result '84'.

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

Addition using Base 10 Blocks


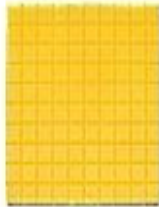



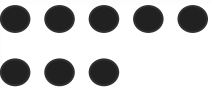


Addition using Base 10 Blocks

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

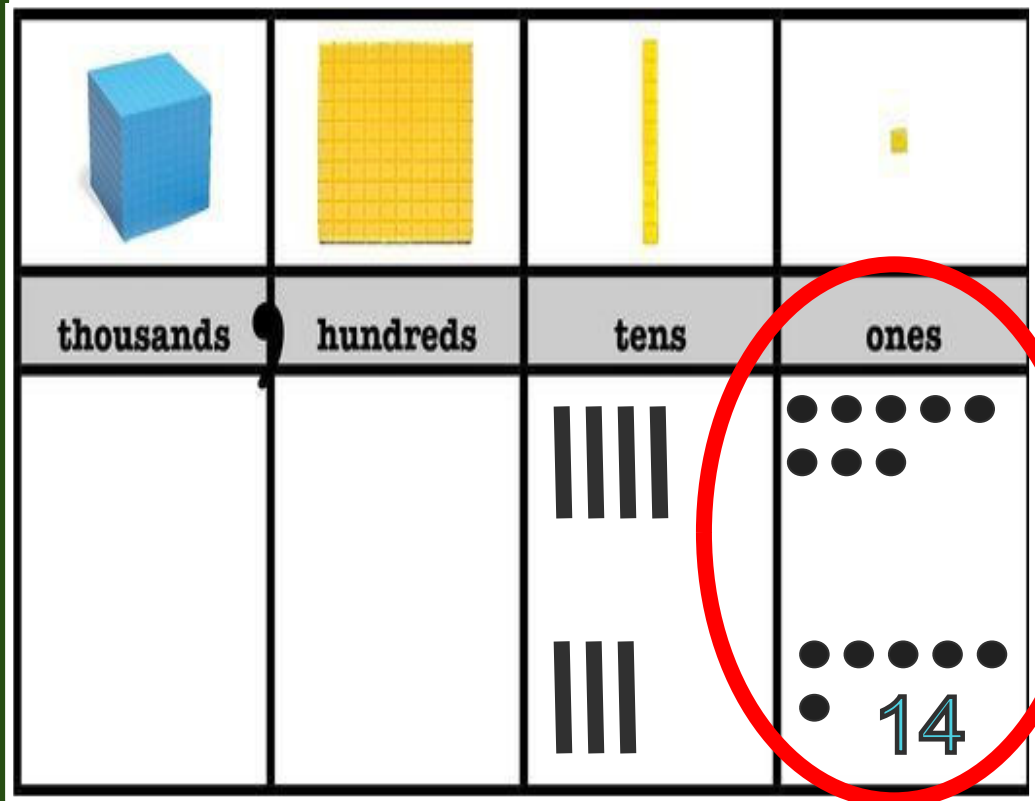
$$48 + 36 =$$

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

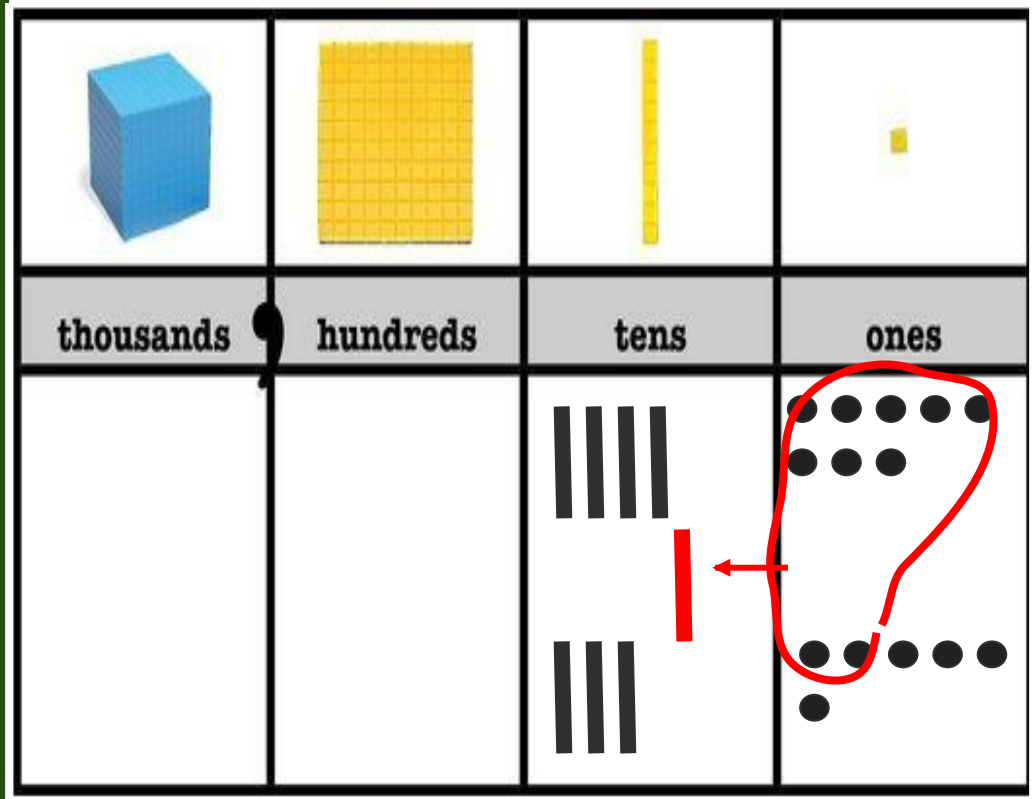
Step 3

$$48 + 36 =$$

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


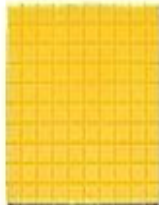







$$48 + 36 =$$

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

$$48 + 36 =$$

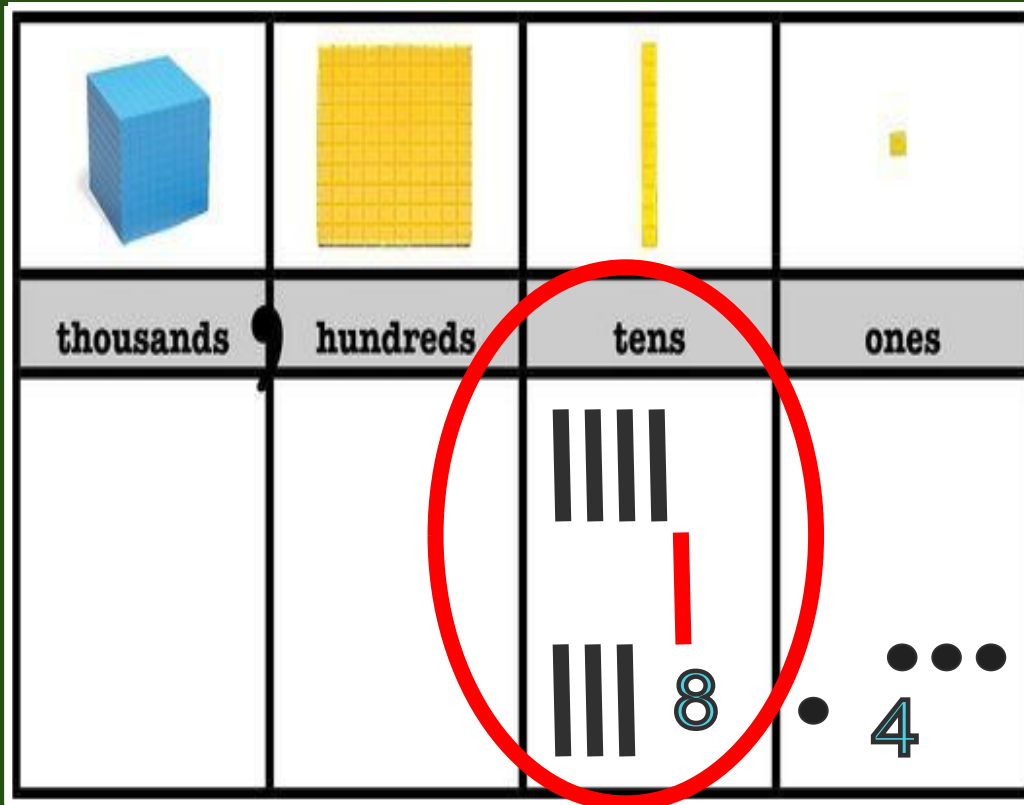
Next, add up ALL of the TENS.

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

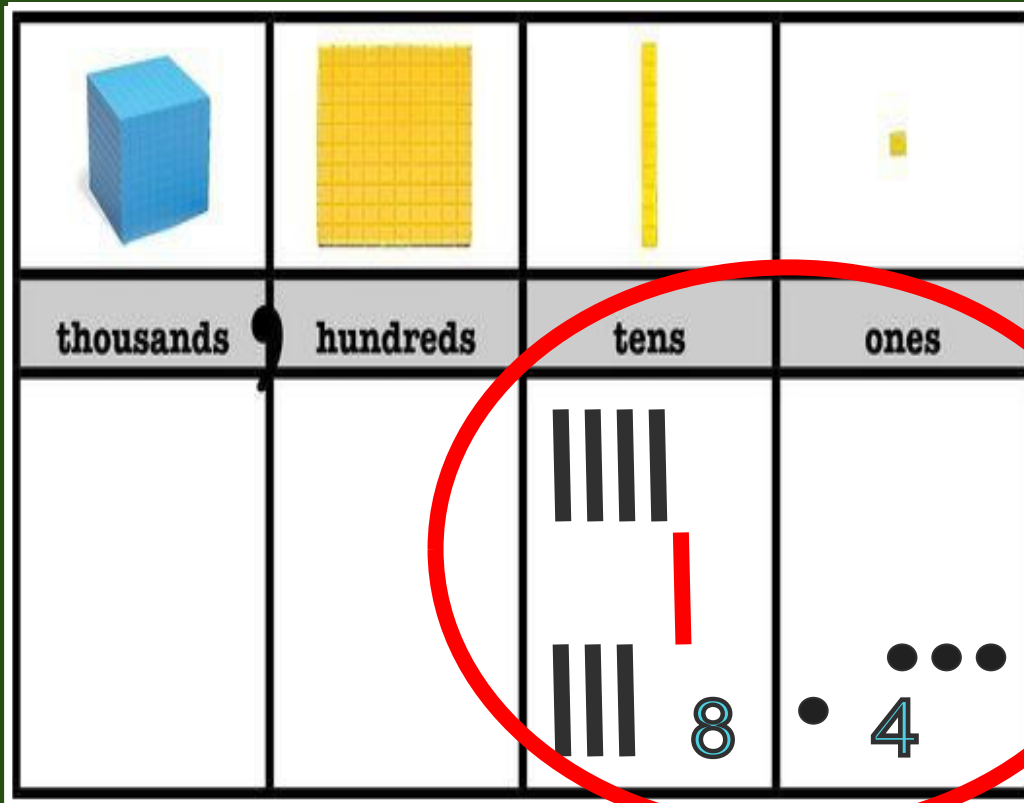
Step 4

$$48 + 36 =$$

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**!

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

Addition using Expanded Form (Option 1)

Step 3

$$48 + 36 =$$

Combine your **ones**
together!

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

The ones place (8 and 6) is circled in yellow, and the result 14 is shown below the line.

Addition using Expanded Form (Option 1)

Step 4

$$48 + 36 =$$

Next, combine your **tens** together!

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

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.

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

The 14 is expanded into 10 and 4:

$$\begin{array}{c} 14 \\ \swarrow \searrow \\ 10 \quad 4 \end{array}$$

Addition using Expanded Form (Option 1)

Step 6

$$48 + 36 =$$

Now combine the 10 from
the 14 with the 70.

You should get 80.

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

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**!

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

Addition using Expanded Form (Option 2)

Step 3

$$48 + 36 =$$

Combine your **ones**
together!

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

The ones place (8 and 6) is circled in yellow, and the result 14 is shown below the line.

Addition using Expanded Form (Option 2)

Step 4

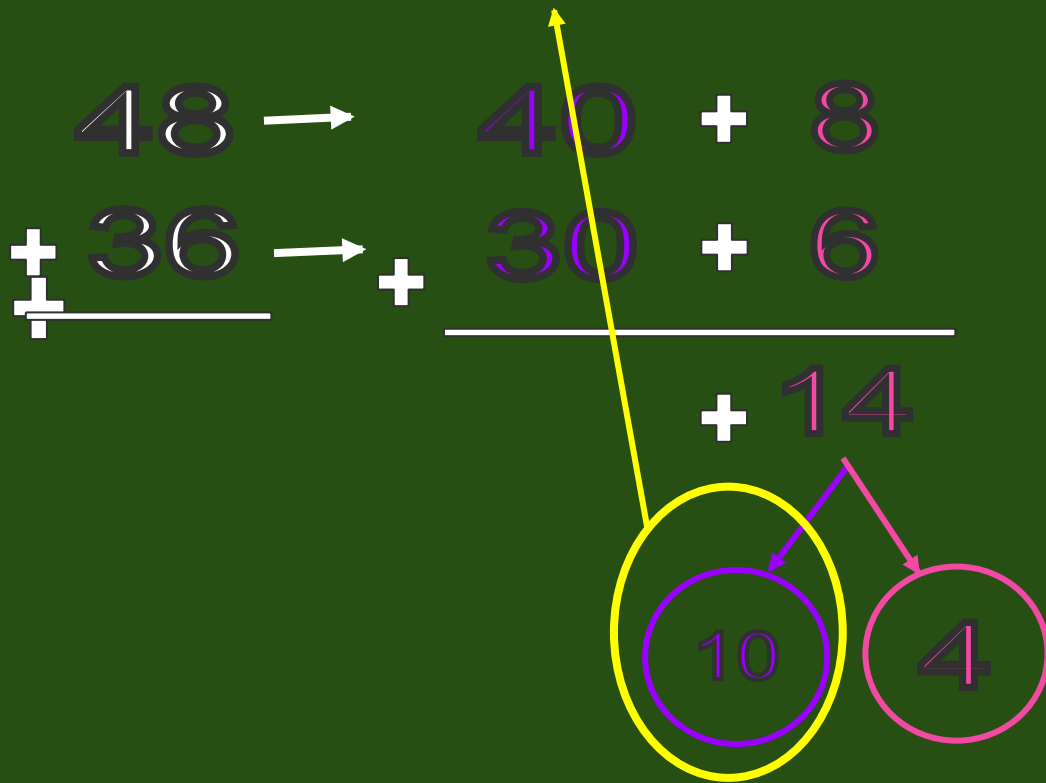
$$48 + 36 =$$

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.

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

$+ 4$

Addition using Expanded Form (Option 1)

Step 6

$$48 + 36 =$$

Now combine the tens.

Be sure not to forget the ten
that you added!

The diagram illustrates the addition of 48 and 36 using expanded form. On the left, the numbers 48 and 36 are shown with a plus sign and an arrow pointing to the right. The expanded form is shown as follows:

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 10 \\ 40 + 8 \\ 30 + 6 \\ \hline 80 + 4 \end{array}$$

The tens (40 and 30) are combined to form 80, which is circled in yellow. The ones (8 and 6) are combined to form 4. The final result is 80 + 4.

Addition using Expanded Form (Option 1)

Step 7

$$48 + 36 =$$

Now combine the final tens
with the final ones.

You should get 84!

$$\begin{array}{r} 48 \\ + 36 \\ \hline \end{array} \rightarrow \begin{array}{r} 10 \\ 40 + 8 \\ + 30 + 6 \\ \hline 80 + 4 \\ \downarrow \\ 84 \end{array}$$

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 $30 + 6$

$$36 = 30 + 6$$



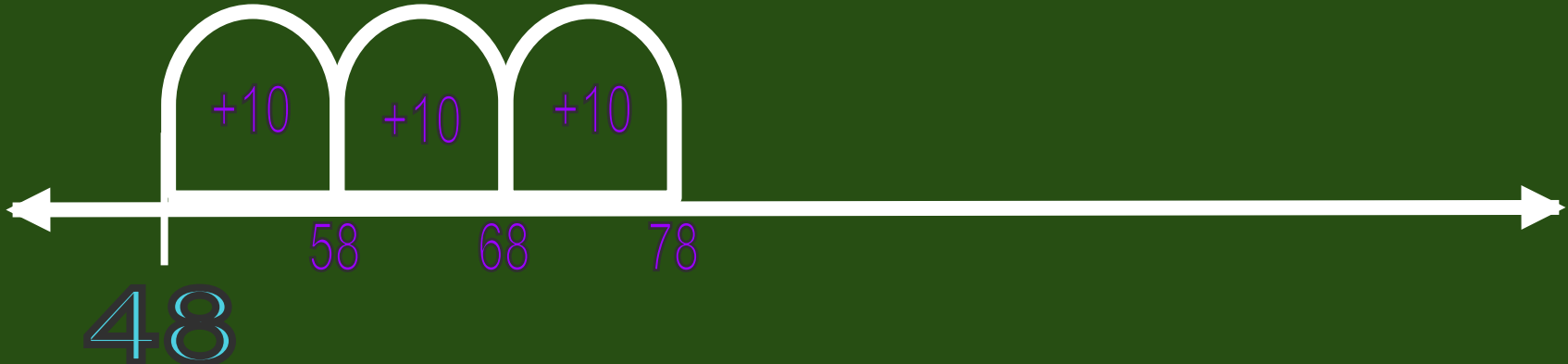
Addition using an Open Number Line

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!

$$36 = 30 + 6$$

