

TOPIC 7

Add Multi-Digit Whole Numbers



OVERVIEW

Topic 7 focuses on adding multi-digit whole numbers using mental math, estimation, and a standard algorithm with procedural fluency.

FIND SUMS

Use Mental Math to Add Your child will use the break-apart and make ten strategies to find sums using mental math.

Here is how your child might find $325 + 114$ using the make ten strategy.

Break apart 114.

$$114 = 5 + 100 + 9$$

Add 5 to 325 to make a ten.

$$325 + 5 = 330$$

Then add 100.

$$330 + 100 = 430$$

Finally, add 9.

$$430 + 9 = 439$$

ESTIMATE SUMS

Use Rounding and Compatible Numbers to Add Your child will learn two ways to estimate sums: rounding and compatible numbers. Compatible numbers are numbers that are close to the original numbers, but are easy to add mentally. Regardless of the estimation method, your child should begin to understand that the closer the replaced numbers are to the original numbers, the closer the estimate will be to the actual sum or difference.

Here are two ways your child might solve the problem “Do the two pandas together weigh more than 500 pounds?”



One Way

Round to the nearest hundred and add.

$$\begin{array}{r} 255 \rightarrow 300 \\ + 329 \rightarrow 300 \\ \hline 600 \end{array}$$

$255 + 329$ is about 600.

$600 > 500$

So, the pandas together weigh more than 500 pounds.

Another Way

Use compatible numbers to add.

$$\begin{array}{r} 255 \rightarrow 250 \\ + 329 \rightarrow 325 \\ \hline 575 \end{array}$$

$255 + 329$ is about 575.

$575 > 500$

So, the pandas together weigh more than 500 pounds.

STANDARD ADDITION ALGORITHMS

Record Partial Sums to Add Your child will use place value to break apart numbers and record partial sums to add. There are two ways to use partial sums — starting from the left or starting with the ones.

Here are two ways to find $243 + 179$.

Add each place value. Start with hundreds.

$$\begin{array}{r} 243 \\ + 179 \\ \hline 300 \quad 2 \text{ hundreds} + 1 \text{ hundred} \\ 110 \quad 4 \text{ tens} + 7 \text{ tens} \\ + 12 \quad 3 \text{ ones} + 9 \text{ ones} \\ \hline 422 \end{array}$$

300, 110, and 12 are partial sums.

Add each place value. Start with ones.

$$\begin{array}{r}
 243 \\
 + 179 \\
 \hline
 12 \\
 110 \\
 + 300 \\
 \hline
 422
 \end{array}$$

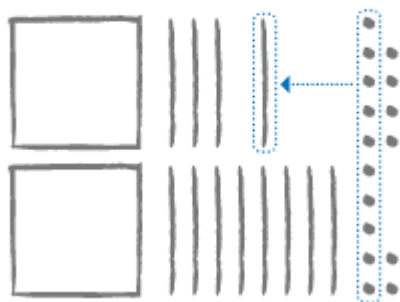
12, 110, and 300 are partial sums.

Regroup Partial Sums Your child will learn to regroup when using partial sums. This will enable your child to learn and use a standard algorithm with understanding.

Here is how your child might find $139 + 187$. Notice how the regrouping is recorded for each step.

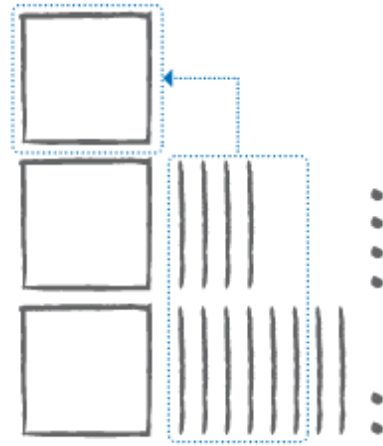
Regroup the ones.

16 ones = 1 ten + 6 ones



Regroup the tens.

12 tens = 1 hundred + 2 tens



Hundreds	Tens	Ones
1	3	9
+ 1	8	7
2	11	+6
2	+2	6
3	2	6

Use a Traditional Algorithm Your child will also add numbers using a traditional algorithm, which records regrouping above the addends.

$$\begin{array}{r}
 3,785 \\
 + 2,125 \\
 \hline
 5,910
 \end{array}$$

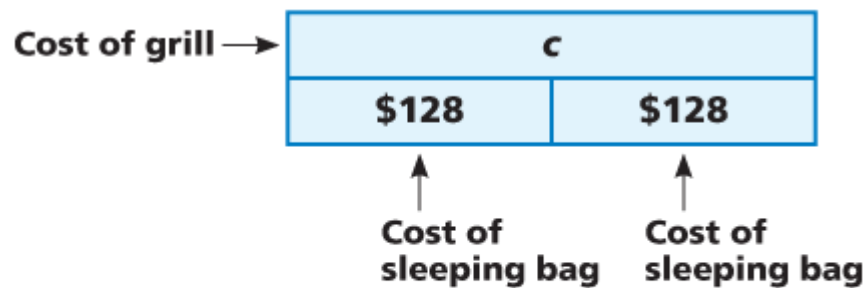
SOLVE REAL-WORLD PROBLEMS

Solve Multi-Digit Comparison Problems Your child will apply the addition methods practiced in this topic, as well as other operations used in earlier topics, to solve real-world comparison problems. For example, "How can Jin compare the cost of the grill to the cost of the sleeping bag?"

DATA	Item	Price
	Grill	\$256
	Backpack	\$89
	Lantern	\$78
	Sleeping Bag	\$128

One Way

Use addition to compare.



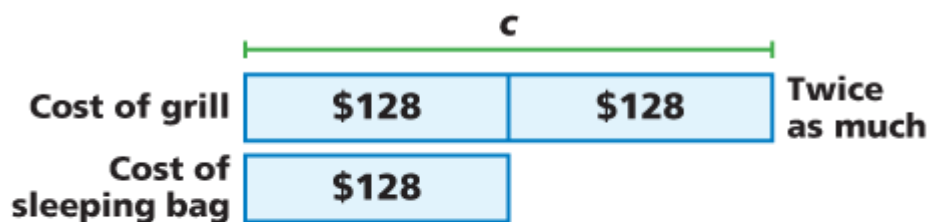
$$c = \$128 + \$128$$

$$c = \$256$$

The cost of the grill is \$128 more than the cost of the sleeping bag.

Another Way

Use multiplication to compare.



$$c = 2 \times \$128$$

$$c = \$256$$

The cost of the grill is twice as much as the cost of the sleeping bag.



CONNECT THE MATH

You can connect the math in this topic to everyday experiences. Be aware of situations in which you would add two numbers (up to 4 digits), and enlist your child’s help. You might have your child find the sum of two bills, two distances you will drive, or two weights. Help your child determine which method to use — mental math, estimation, or an algorithm. Encourage your child to use a method that can be used reliably and accurately.



TOPIC 7 LESSONS

Lesson 7-1	<u>Mental Math: Addition</u>
Lesson 7-2	<u>Estimate Sums</u>
Lesson 7-3	<u>Use Partial Sums to Add</u>
Lesson 7-4	<u>More Partial Sums: Regrouping</u>
Lesson 7-5	<u>Add Whole Numbers</u>
Lesson 7-6	<u>Add Greater Numbers</u>
Lesson 7-7	<u>PROCEDURAL FLUENCY PRACTICE</u> <u>Use a Standard Algorithm to Add</u>
Lesson 7-8	<u>Solve More Real-World Comparison Problems</u>
Lesson 7-9	MATH THINKING AND REASONING <u>Complete Tasks with Mathematical Fluency</u>