

Discover!

Math

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Lesson 1

Real-World Number Problems

By the end of this lesson, you will be able to:

- add and subtract multi-digit numbers
- solve real-world word problems using addition and subtraction

Academic Vocabulary

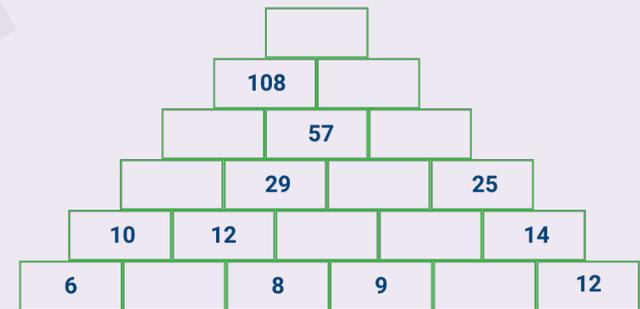
Read the following vocabulary words and definitions. Look through the lesson. Can you find each vocabulary word? Underline the vocabulary word in your lesson and write the page number where you found each word on the blanks here.

- **addends:** the numbers that are added (page ____)
- **difference:** the answer to a subtraction problem (page ____)
- **minuend:** a number that has something subtracted from it (page ____)
- **subtrahends:** numbers that are being subtracted (page ____)
- **sum:** the answer to an addition problem (page ____)



Number Pyramid

The sum of each two adjacent blocks is written in the block directly above them. On the bottom row, the blank box between 6 and 8 should be 4 because $6 + 4 = 10$ and $4 + 8 = 12$. Find the missing values for the other blocks using addition or subtraction.



What a great day for an adventure! You asked your family to take a trip to a nearby theme park, and you got a yes! You've got to do a lot of planning for the trip, including budgeting, scheduling, and prioritizing who wants to do what.

To start, the theme park is 116 miles from your home. Your family is planning to stop on the way back to visit friends, making the return trip 124 miles.

How would you determine the total distance your family will travel?

.....

.....



SHARPEN YOUR SKILLS

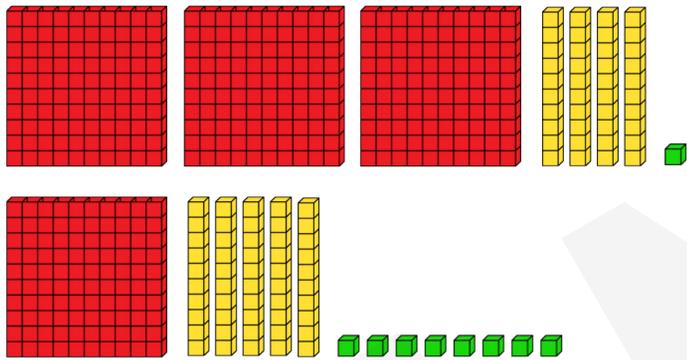
Go to the digital content for this lesson to practice the multiplication facts for threes. You can practice with digital flash cards and take a quiz. If you do not have access to the digital content, you can use physical flash cards to practice the facts.

In this lesson, you will revisit addition and subtraction with multi-digit numbers. What are some things you already know about adding

Adding Multi-Digit Numbers

You already learned that **addends** are the numbers that are added. When adding any numbers, it's important to make sure to line up the digits according to place value. This ensures the correct **sum**, the answer when adding, is found.

Example: To find the sum of 341 and 158, use place value blocks to model each number. 341 is the same as 3 hundreds, 4 tens, and 1 one. 158 is the same as 1 hundred, 5 tens, and 8 ones. Adding the



ten thousands	thousands	hundreds	tens	ones
		3 + 1	4 5	1 8
		4	9	9

WRITE

Label the addends and sum in the equation.

$$436 + 521 = 957$$

PLAY

Missing Digit Puzzle

Create each of the images below for numbers 1 through 3.

Fill in the missing digits (0–9) so each addition sentence is true.

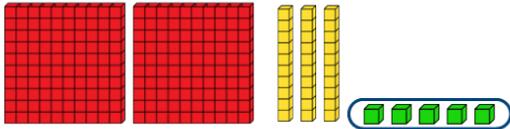
$$1. \begin{array}{r} \square 9 2 \\ + 2 1 \square \\ \hline 6 1 1 \end{array}$$

$$2. \begin{array}{r} 1 \square 2 6 \\ + 2 1 \square \\ \hline 2 1 4 0 \end{array}$$

$$3. \begin{array}{r} 5 \square 1 \\ + \square 3 7 \\ \hline 9 1 8 \end{array}$$

Regrouping to Add Multi-Digit Numbers

Some addition problems require regrouping to find the sum. Look at the problem below. Beginning with the lowest place value, the digits from both



ten thousands	thousands	hundreds	tens	ones
		5	2	7
		+ 2	3	6
		7	6	3

ONLINE CONNECTION

Use a search engine to find out more about theme parks. What's the tallest roller coaster you can find? How much taller is it than the next tallest roller coaster? What's the fastest roller coaster? What other data can you find about theme parks? Record some of the facts you find.

PRACTICE

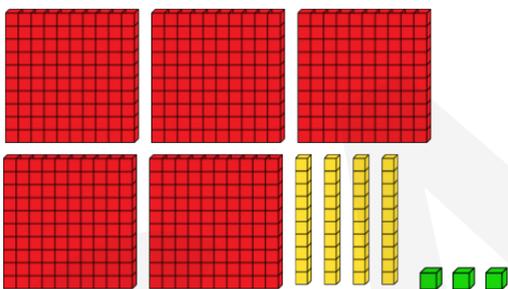
Regrouping to Add

Using place value blocks, show that $746 + 385 = 1,131$.

Subtracting Multi-Digit Numbers

Place values and columns are also needed when subtracting multi-digit numbers. The two values are stacked in a column so that the ones, tens, hundreds, or thousands in both numbers are lined up. The number placed on top is called the **minuend**. A **minuend** is a number that has something subtracted from it. Placing the minuend on top allows for easier subtraction and regrouping. The numbers that are being subtracted are called **subtrahends**. The subtrahend is placed on the bottom. Once the values are lined up in their columns, it is easier to find the **difference**, which is the answer to the subtraction problem.

Example: To find the difference between 543 and 122, use place value blocks to model each number. 543 is the same as 5 hundreds, 4 tens, and 3 ones. 122 is the same as 1 hundred, 2 tens, and 2 ones. For every place value block



ten thousands	thousands	hundreds	tens	ones
		5	4	3
		- 1	2	2
		4	2	1

WRITE

Label the difference, subtrahend, and minuend in the equation.

$$1,876 - 1,321 = 555$$



TAKE A CLOSER LOOK

Estimation is a strategy that can be used to determine whether your calculations are on the right track when subtracting or adding.

Example: $1,425 - 987$

$1,425$ is about $1,400$.

987 is about $1,000$.

$1,400 - 1,000$ is about 400 .

The difference between $1,425 - 987$ is about 400 .

Estimate the following differences.

1. $2,325 - 1,829$

.....

2. $891 - 639$

.....

3. $12,372 - 7,209$

.....

4. $1,864 - 1,327$

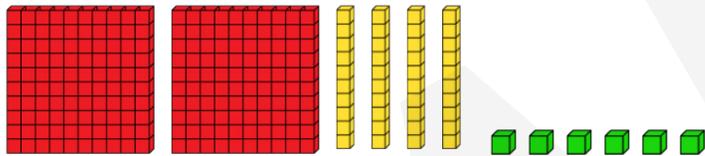
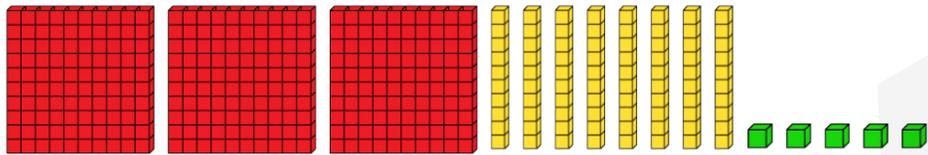
Regrouping to Subtract Multi-Digit Numbers

Often, subtraction problems require regrouping to find the difference. Look at the problem below. Beginning with the lowest place value, the digits from the lower value number are subtracted from the higher value.

Since subtracting 6 ones from 5 ones would equal a non-whole number, a 10 is regrouped into ones to subtract.

5 ones and 1 ten make 15 ones. 15 ones minus 6 ones is 9 ones.

Notice that since a 10 was regrouped from 385, the tens place now shows 7 tens.



ten thousands	thousands	hundreds	tens	ones
		3	8 ⁷	¹ 5
		- 2	4	6
		1	3	9

PRACTICE

Regrouping to Subtract

PRACTICE

Real-World Adding and Subtracting

The data table below shows the attendance at three theme parks during a typical weekday. Use the data table to answer the following questions.

Theme Park	Monday	Tuesday	Wednesday	Thursday	Friday
Fun World	12,085	12,978	15,008	17,381	19,276
Adventure Kingdom	14,209	11,545	12,019	13,086	16,942
Magic Park	11,255	11,091	14,539	15,112	16,990

1. On which day is the attendance at Adventure Kingdom greatest?
2. What is the difference in attendance between Monday and Friday at Fun World?.....
3. What's the total weekday attendance at Magic Park?
4. Which of the theme parks is most popular on Wednesday?

REVIEW

In this lesson, you learned:

- Lining up the place values of two different numbers allows you to find the sum or difference accurately.
- Addition and subtraction can be used to solve real-world situations.

Think About It

What do you think is a common mistake made when adding or subtracting large numbers?

Measurement and Data

Use what you know about unit conversions to answer the questions below.

- At Six Flags St. Louis, riders need to be at least 50 inches tall to ride the new Catwoman Whip. How tall is that in feet and inches?

.....

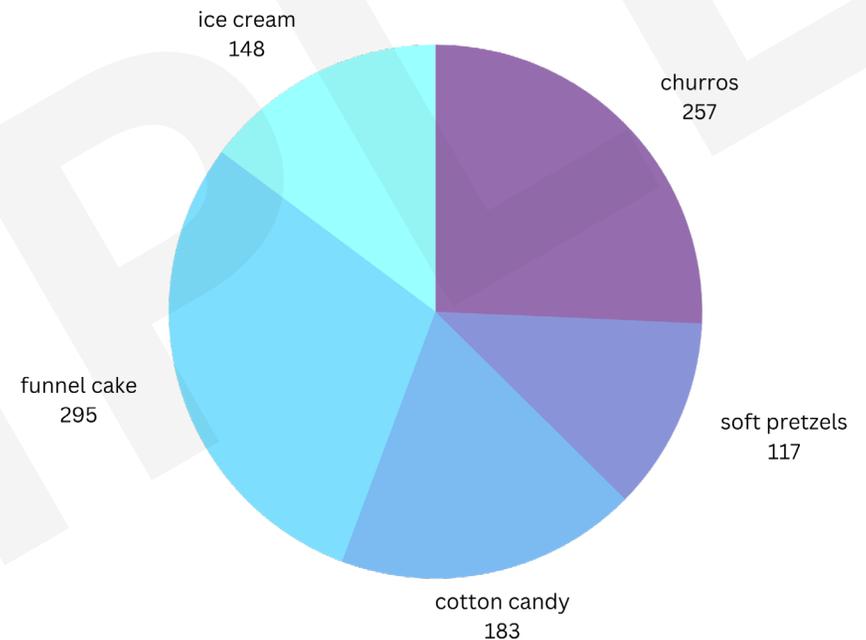
- To ride The Amazing Adventures of Spiderman, a rider must be at least 40 inches tall. How tall is that in feet and inches?

.....

- At Six Flags Magic Mountain in California, riders need to be at least 33 inches tall to ride Canyon Blaster with an adult. Riders who are 36 inches or taller can ride alone. Consider your height. Would you need an adult to ride with you? Explain your answer.



Use the pie graph below to answer the following questions.



1,000 theme park fans were surveyed about their favorite theme park snack. Their votes were collected in this pie graph.

- Which snack is the most popular?
- Which snack is the least popular?

Answer the following questions.

1. At the end of your day at the theme park, you see that you walked 14,226 steps. On a typical day, the number of steps you get in is 10,500. How much more walking have you done at the theme park?

.....
.....

2. The Wonder Woman ride has the longest roller coaster track at 3,300 feet! The previous record-holder was Kingda Ka, which measures 3,118 feet. How much longer is the Wonder Woman roller coaster?

.....
.....

3. Kingda Ka is still the tallest roller coaster at 456 feet high. The Wonder Woman ride is 131 feet tall. How much taller is Kingda Ka?

.....
.....

Choose the correct answer for each question.

4. Solve $10,257 - 9,184$.

- A. 173
- B. 1,033
- C. 1,063
- D. 1,073

5. Solve $37,459 + 18,282$.

- A. 46,741
- B. 55,731
- C. 55,741
- D. 56,741

Read each sentence. Circle True or False.

- 6. True or False The sum of 1,625 and 290 is 1,915.
- 7. True or False The difference between 1,680 and 595 is 1,065.
- 8. True or False An addend is the result of adding two or more numbers.

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