Discuss

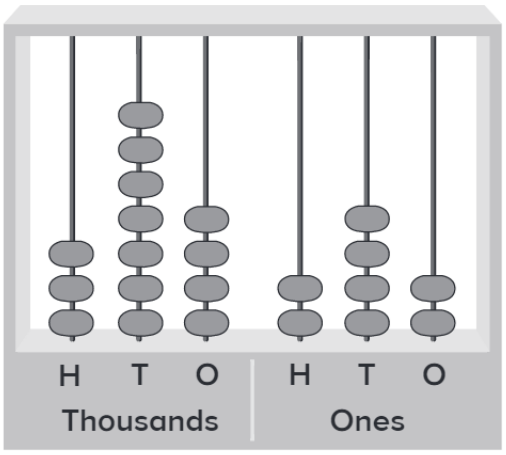
Number: Reviewing six-digit numbers

Count the beads.

Write the number represented in each place on this abacus.

Draw one more bead on the ten thousands rod.

Write the new number.

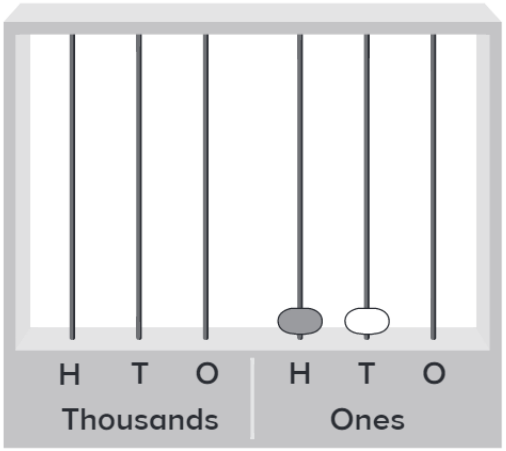


Write the new number in words.

Look at this abacus.

How can you describe the relationship between the gray bead and the white bead?

The gray bead is ten times the value of the white bead.



Draw a blue bead on the rod just left of the gray bead.

What is the relationship between the blue and the gray bead?

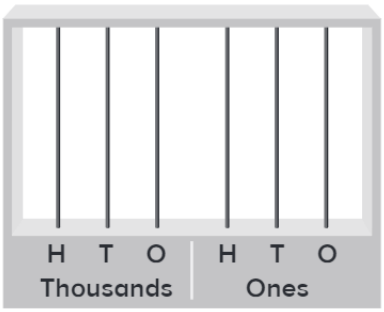
This activity focuses on the value of each place in six-digit numbers and on writing these numbers in words and numerals.

Practice

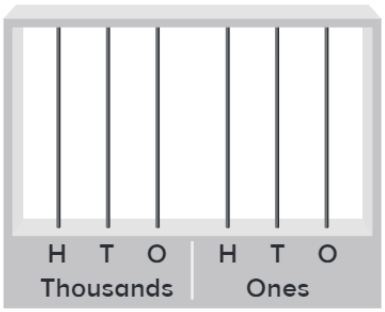
Number: Reviewing six-digit numbers

1. Draw beads on each abacus to represent the number.

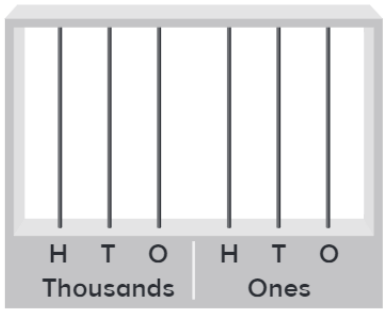
a. 524,476



b. 640,351

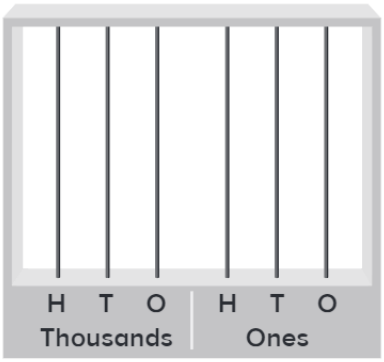


c. 108,520



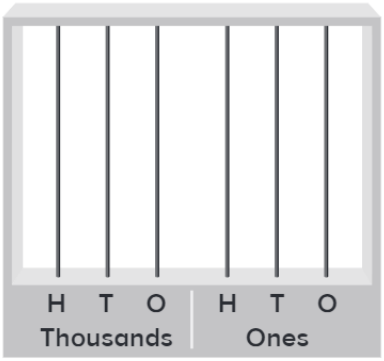
2. Complete the missing parts.

a.



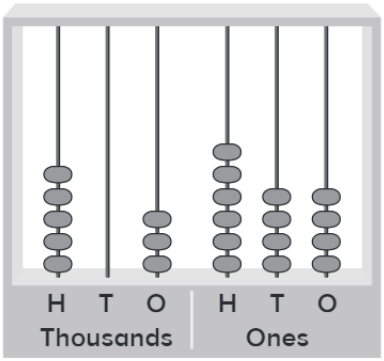
five hundred eighty-six thousand ninety

b.



335,901

c.



This activity focuses on the value of each place in six-digit numbers and on writing these numbers in words and numerals.

Discuss

Number: Reading and writing seven-digit numbers

What place-value names are said when you say a seven-digit number?

How would you say the number on this expander?

			millions				thousands				ones
		1		3	2	5		4	7	6	

Read this number name.

three million five hundred thirty-six thousand two hundred eighteen

Write the matching number on this expander.

			millions				thousands				ones

How did you know where to write each digit?

Read this number name.

one million five hundred twenty thousand two hundred forty

Write the matching number on this expander.

			millions				thousands				ones

How did you know where to write the zeros?

This activity shows how seven-digit numbers are written using a numeral expander and in words. Numeral expanders help build an understanding of the value of each digit in a number.

Practice

Number: Reading and writing seven-digit numbers

1. Read the number name. Then write the matching number on each expander.

a. two million three hundred eighteen thousand thirty-one

b. seven million four hundred fifty thousand three hundred two

c. five million thirty-six thousand seven hundred eleven

d. nine million five hundred four thousand three

e. eight million four thousand four hundred sixty-six

2. Read the number name. Then write the matching numeral.

a. three million five hundred nine thousand _____

b. one million three hundred thirty-three thousand two hundred five _____

c. five million twelve thousand three hundred twenty-nine _____

d. nine million eighty-five thousand three hundred fifty _____

e. four million one thousand nine hundred _____

This activity shows how seven-digit numbers are written using a numeral expander and in words. Numeral expanders help build an understanding of the value of each digit in a number.

Discuss

Number: Locating seven-digit numbers on a number line

This poster was used to show the total funds raised for cancer research.

Write the total amount raised. $ _____

The first mark is zero.
Say the amount that each mark on the poster represents.

There are ten marks up to 1,000,000, so I know each mark represents one-tenth of 1,000,000.

Write the value of the mark just before March. $ _____

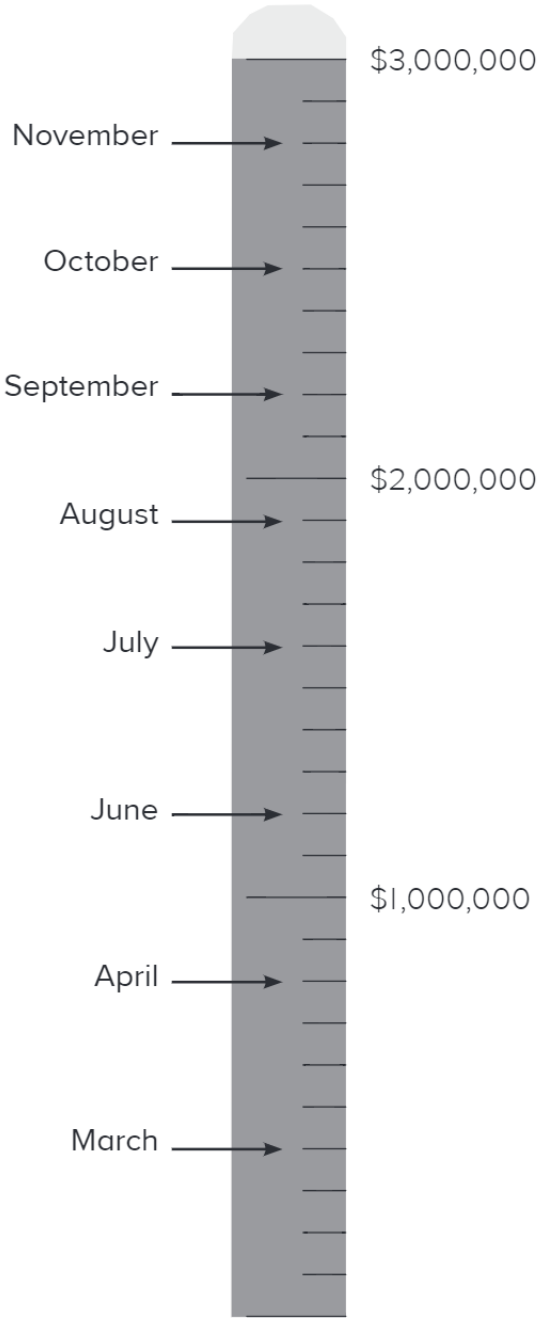
Draw and label an arrow to show where you think May could be located.

Use the marks to help you write these amounts next to where you think they would be located.

$2,150,000	$150,000	$780,000
$1,810,000	$2,980,000	$1,590,000

$1,150,000 is halfway between the first and second marks just above $1,000,000.

Raising Funds for Cancer Research



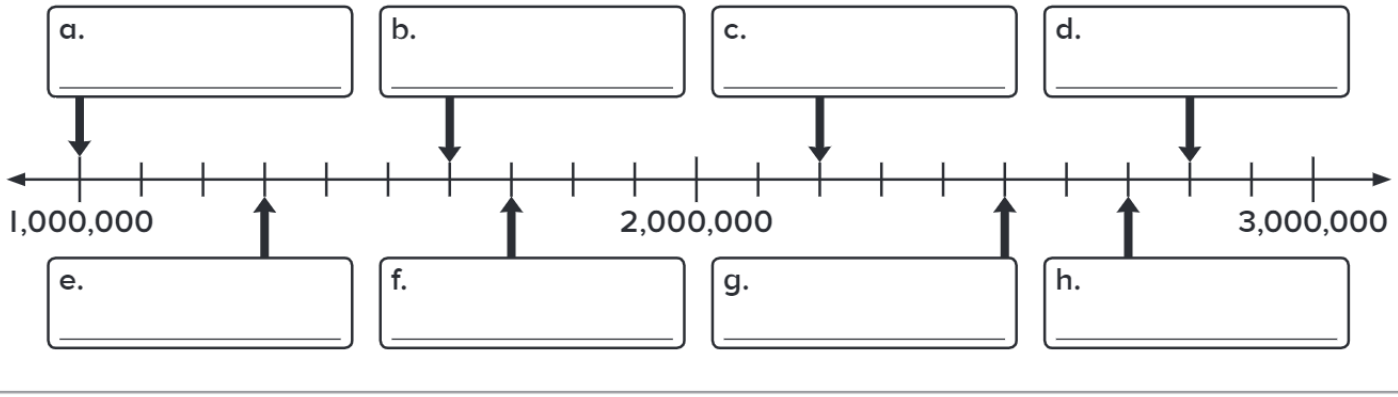
This activity focuses on locating multi-digit numbers on a number line by identifying the values of the marks between known numbers. The marks are equal distances apart.

Practice

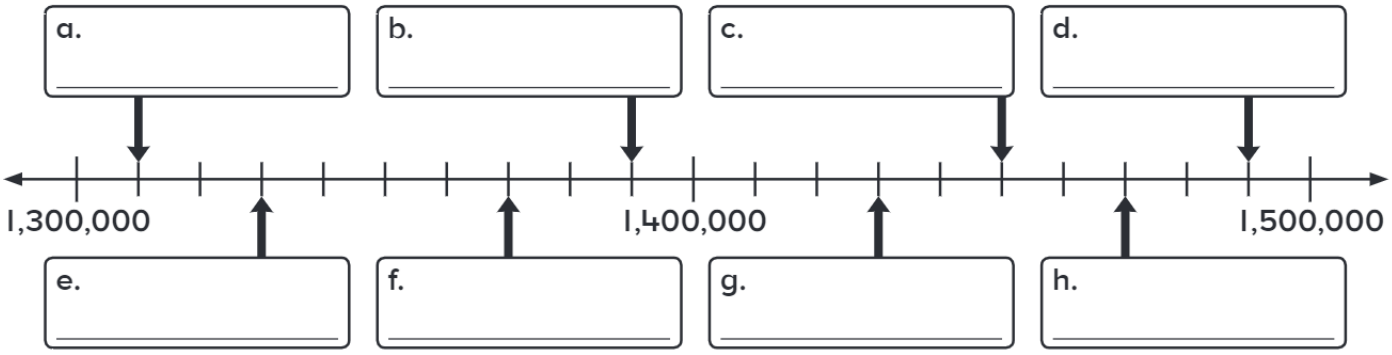
Number: Locating seven-digit numbers on a number line

Write the number shown by each arrow in Questions 1 to 4.

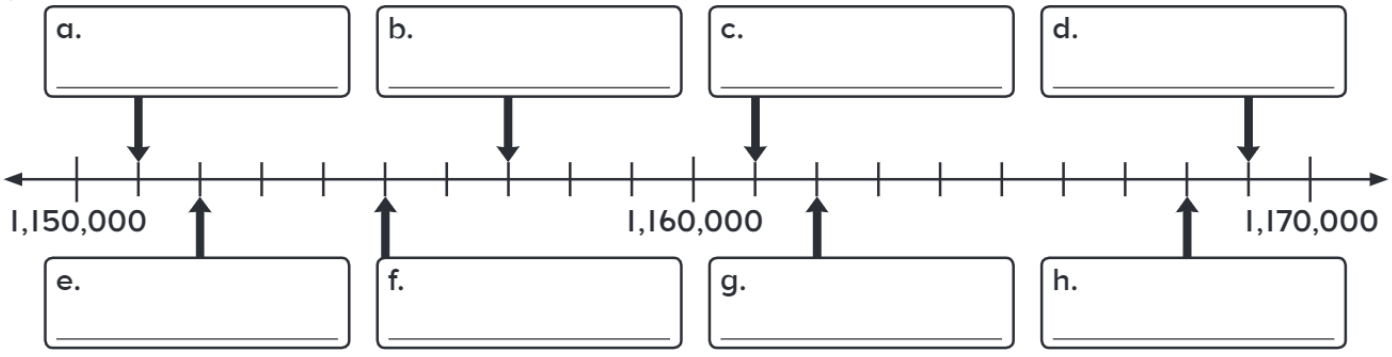
1.



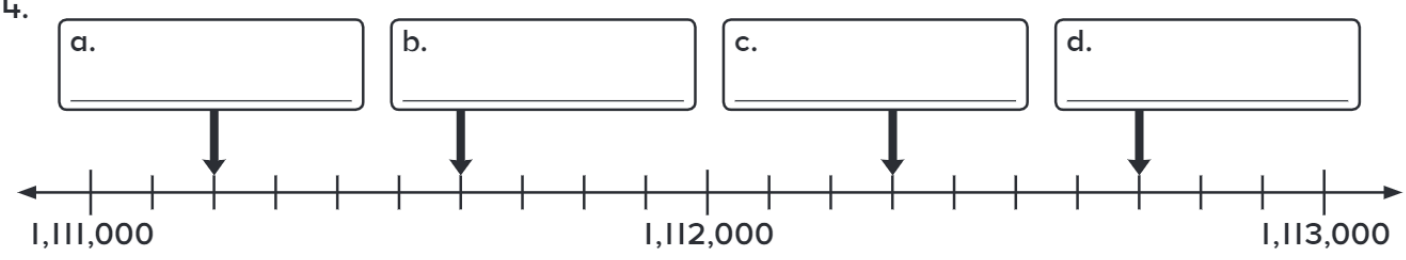
2.



3.



4.

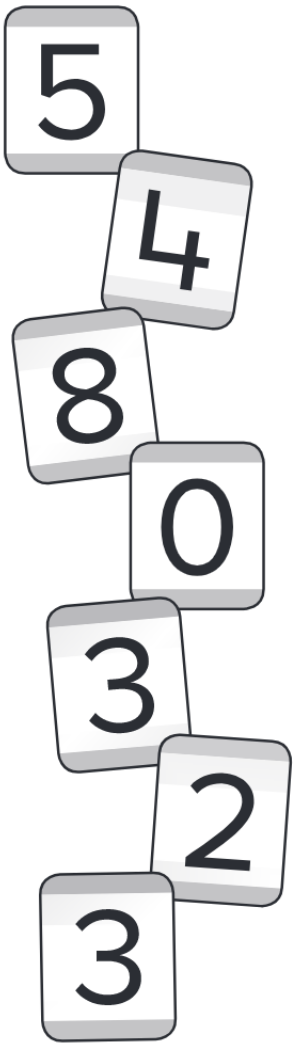


This activity focuses on locating multi-digit numbers on a number line by identifying the values of the marks between known numbers. The marks are equal distances apart.

Discuss

Number: Comparing and ordering seven-digit numbers

Look at these digit cards. Imagine you use each digit once to form a number.



Is this number possible?
How do you know?

5,830,234

Write a number to match each description.

- the greatest number
- the least number
- the greatest number that ends in 8
- the least number that ends in 3
- any number between 2,000,000 and 2,300,000
- any number between 5,400,000 and 5,700,000
- a number that is as close to 3,000,000 as possible
- any number that is less than 5,000,000 but greater than 4,000,000
- three numbers that are greater than 5,700,000

How did you figure out the greatest possible number?

This activity explores the place value of seven-digit numbers. Understanding place value helps when comparing and ordering multi-digit numbers.

Practice

Number: Comparing and ordering seven-digit numbers

1. Look at these digit cards.

Use each digit once to make these.

	greatest	least
a. the **greatest** and **least** numbers		

b. the greatest **even** number

c. the least **even** number

d. any three numbers that are between 3,000,000 and 3,500,000

2. Write the first seven digits of an imaginary phone number on these cards.

Use each digit once to make these.

	greatest	least
a. the **greatest** and **least** numbers		

b. the greatest **odd** number

c. the least **even** number

d. a number that is as close to 5,500,000 as possible

e. a number that is as close to 2,000,000 as possible

f. the three **least** numbers

g. the three **greatest** numbers

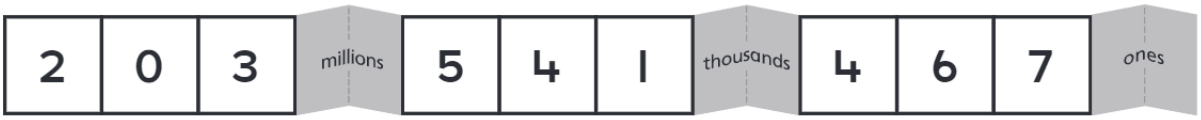
This activity explores the place value of seven-digit numbers. Understanding place value helps when comparing and ordering multi-digit numbers.

Discuss

Number: Reading and writing eight- and nine-digit numbers

Write an example of where you might have seen eight- or nine-digit numbers.

Complete the number name below to show how you read the number on this expander.



____ hundred ____ million ____ hundred ____ thousand ____ hundred ____

Read this number name. three hundred fifty-two million six hundred ten thousand fifty-one

Write the matching number on this expander.

Write the matching number in words.

This activity involves reading and writing eight- and nine-digit numbers in words and numerals. Expanders are used to help reading and writing multi-digit numbers.

Practice

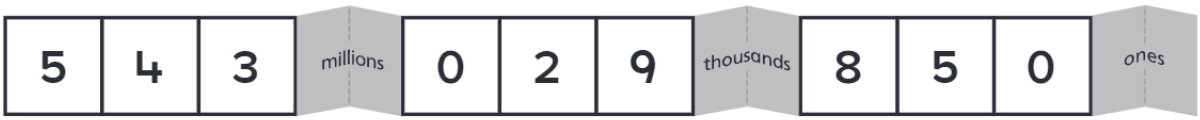
Number: Reading and writing eight- and nine-digit numbers

1. Read the number name. Then write the matching number on each expander.

a. eighty-one million three hundred fifteen thousand nine

b. five hundred nine million twenty thousand three hundred seventy-two

2. Read the number shown on the expander. Write the matching number name.



3. Write the matching number or number name.

a. 818,357,596

b. two hundred fifteen million eighty thousand nine hundred sixty-one

c. 48,027,515

This activity involves reading and writing eight- and nine-digit numbers in words and numerals. Expanders are used to help reading and writing multi-digit numbers.

Discuss

Number: Working with millions expressed as fractions

Draw marks to divide this number line into eight equal parts.

Write the number that the first of your marks represents. _____

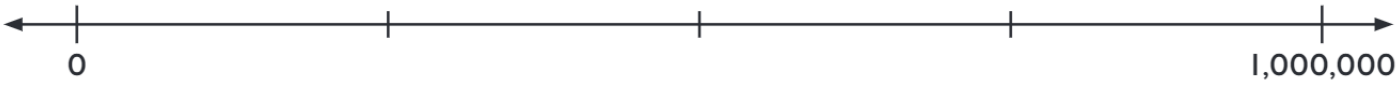
Write the number that your fourth mark represents. _____

For each mark, label the whole number below the line and the fraction above the line.

Write the number on the number line that is closest to 1,234,000. _____

Draw an arrow to the correct mark on the number line.

500,000 750,000 250,000



For each mark, write the fraction below the line.

In this activity, multi-digit numbers are located on a number line and represented as fractions of a million.

Practice

Number: Working with millions expressed as fractions

1. Draw an arrow to show the position of each number on the number line. Be as accurate as possible.

$\frac{1}{4}$ million | $1\frac{3}{4}$ million | $2\frac{1}{4}$ million | $3\frac{1}{2}$ million

2. Write each expression as a whole number.

a. $\frac{3}{4}$ million _____

b. $3\frac{3}{4}$ million _____

c. $4\frac{1}{4}$ million _____

d. $2\frac{1}{4}$ million _____

3. Look at this list of populations. Which state has a population closest to each of these?

POPULATION

Alaska	735,132
Colorado	5,268,367
Connecticut	3,596,080
Indiana	6,570,902
Mississippi	2,991,207
Nevada	2,790,136
New Jersey	8,899,339
New Mexico	2,085,287
North Carolina	9,848,060
Tennessee	6,495,978
West Virginia	1,854,304
Wisconsin	5,742,713

*Source: http://www.governing.com

a. $5\frac{1}{4}$ million _____

b. 1 million _____

c. $8\frac{1}{2}$ million _____

d. $6\frac{3}{4}$ million _____

e. $2\frac{1}{2}$ million _____

f. $9\frac{1}{2}$ million _____

g. 1.5 million _____

h. 3.25 million _____

In this activity, multi-digit numbers are located on a number line and represented as fractions of a million.

Discuss

Number: Rounding numbers with up to nine digits

This table shows some of the most-liked NBA team pages on social media in the United States.

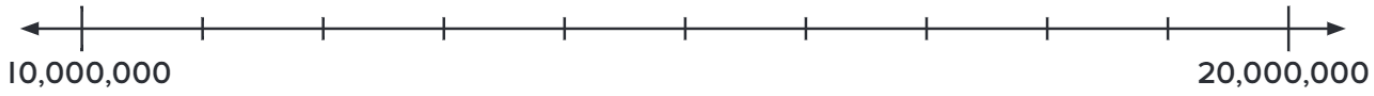
Sports/Teams	Number of likes
LA Lakers	21,872,611
Miami Heat	16,085,433
Boston Celtics	8,771,233
Chicago Bulls	18,923,769
Golden State Warriors	10,332,594

*Source: http://www.socialbakers.com

Which page has the most likes?

Which page has closest to 20,000,000 likes?
What digit did you look at to help you decide?

Draw an arrow on this number line to show an approximate location of the number of likes on the Miami Heat page.



How would you round this number to the nearest million?

How would you round this number to the nearest hundred thousand?

How does the number line support your thinking?

Use the table above to complete these.

a. Round the number of likes on each page to the nearest **million**.

Chicago Bulls		Golden State Warriors	

b. Round the number of likes on each page to the nearest **hundred thousand**.

LA Lakers		Boston Celtics	

This activity practices rounding numbers with up to nine digits by looking at the place value of the digit less than the one asked in the question (i.e. If the question asks to round to the nearest million, look at the hundred thousand place, then the ten thousand place, and so on).

Practice

Number: Rounding numbers with up to nine digits

This table shows the numbers of views on popular video sports channels in the United States.

Channel	Number of video views
MLB	772,490,815
USA Gymnastics	162,757,126
PGA Tour	220,098,855
NHL	468,841,873
Major League Soccer	171,190,142
U.S. Soccer	152,333,128

*Source: http://www.socialbakers.com

1. Write the channels that have more than 200,000,000 video views.

2. Round the number of views to the nearest **ten**, **hundred**, and **thousand**.

Channel	Nearest Ten	Nearest Hundred	Nearest Thousand
U.S. Soccer			
PGA Tour			
NHL			
USA Gymnastics			
MLB			
Major League Soccer			

3. Round the number of views to the nearest **ten thousand** and the nearest **hundred thousand**.

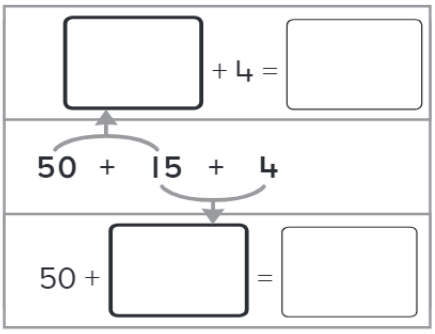
Channel	Nearest Ten Thousand	Nearest Hundred Thousand
USA Gymnastics		
Major League Soccer		
MLB		
U.S. Soccer		
NHL		
PGA Tour		

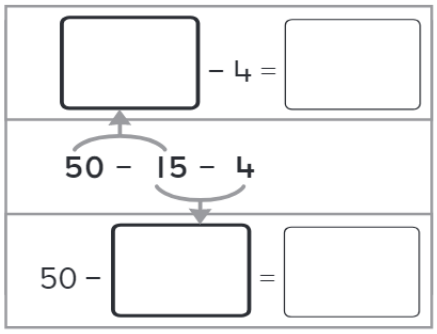
This activity practices rounding numbers with up to nine digits by looking at the place value of the digit less than the one asked in the question (i.e. If the question asks to round to the nearest million, look at the hundred thousand place, then the ten thousand place, and so on).

Discuss

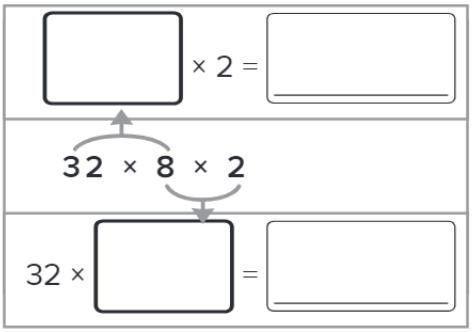
Algebra: Investigating order with one operation

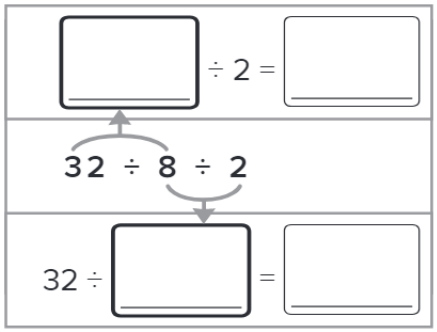
Write the missing numbers to complete these addition and subtraction equations.





Write the missing numbers to complete these multiplication and division equations.





Which operations can you work with in different orders?

Which operations can you only work with in one order?

Do you think these rules will always be true? Explain your thinking.

This activity reviews how the order for adding or multiplying three numbers does not change the answer. This is called the associative property of addition and multiplication. When subtracting or dividing three numbers the order cannot be changed.

Practice

Algebra: Investigating order with one operation

1. Write the missing numbers to complete these numbers sentences.

a. $\square + 7 = \square$

$10 + 3 + 7$

$10 + \square = \square$

b. $\square + 5 = \square$

$8 + 8 + 5$

$8 + \square = \square$

c. $\square + 4 = \square$

$2 + 9 + 4$

$2 + \square = \square$

d. $\square - 3 = \square$

$20 - 6 - 3$

$20 - \square = \square$

e. $\square - 4 = \square$

$24 - 9 - 4$

$24 - \square = \square$

f. $\square - 2 = \square$

$18 - 10 - 2$

$18 - \square = \square$

g. $\square \times 5 = \square$

$4 \times 2 \times 5$

$4 \times \square = \square$

h. $\square \times 2 = \square$

$5 \times 3 \times 2$

$5 \times \square = \square$

i. $\square \times 3 = \square$

$6 \times 2 \times 3$

$6 \times \square = \square$

j. $\square \div 2 = \square$

$20 \div 10 \div 2$

$20 \div \square = \square$

k. $\square \div 4 = \square$

$32 \div 8 \div 4$

$32 \div \square = \square$

l. $\square \div 2 = \square$

$60 \div 6 \div 2$

$60 \div \square = \square$

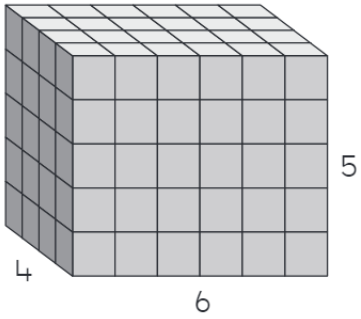
2. Look at all of your answers above. Write what you notice.

This activity reviews how the order for adding or multiplying three numbers does not change the answer. This is called the associative property of addition and multiplication. When subtracting or dividing three numbers the order cannot be changed.

Discuss

Algebra: Investigating order with two operations

How would you calculate the number of cubes in this prism?



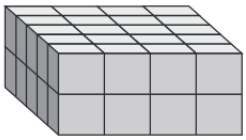
Write an equation to show your thinking.

Which pair of numbers were easier to multiply first?

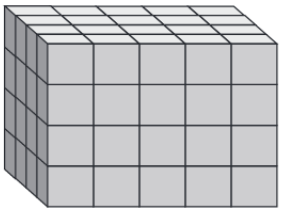
Parentheses are not needed for multiplication, but they do show which two factors to multiply first.

Write an equation with parentheses to show how to calculate the total number of cubes in each prism. Then write the product.

a.

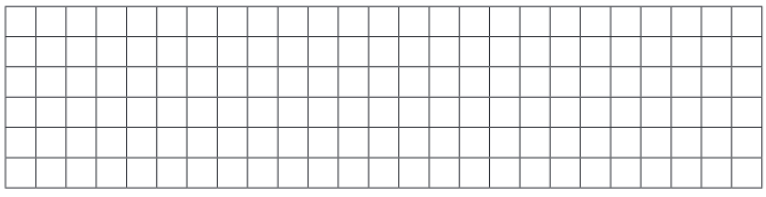


b.



This array shows 6 x 25.

How would you calculate the area?



Draw a line on the array to split the rows into parts to make it easier to multiply. Then label the parts.

Write an equation using parentheses if necessary to show how you would calculate the area. Then write the area.

This activity first works with multiplication involving three factors, and then with equations where parentheses are needed to indicate the order in which the operation(s) is/are to be completed.

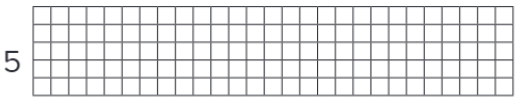
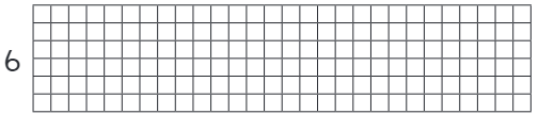
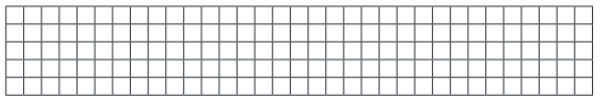
Practice

Algebra: Investigating order with two operations

1. For each equation, write the product. Then circle the part that shows how you multiplied.

a. $(9 \times 4) \times 2 =$ _____ $= 9 \times (4 \times 2)$	**b.** $(3 \times 5) \times 4 =$ _____ $= 3 \times (5 \times 4)$
c. $(8 \times 4) \times 3 =$ _____ $= 8 \times (4 \times 3)$	**d.** $(6 \times 5) \times 3 =$ _____ $= 6 \times (5 \times 3)$

2. Color each rectangle to show how you could split it into two parts to figure out the area. Complete each equation.

a. 27  5	$5 \times (\_\_\_\_ + \_\_\_\_) = \_\_\_\_ \times \_\_\_\_ + \_\_\_\_ \times \_\_\_\_$
b. 28  6	$6 \times (\_\_\_\_ + \_\_\_\_) = \_\_\_\_ \times \_\_\_\_ + \_\_\_\_ \times \_\_\_\_$
c. 33  5	$5 \times (\_\_\_\_ + \_\_\_\_) = \_\_\_\_ \times \_\_\_\_ + \_\_\_\_ \times \_\_\_\_$

3. Alejandro and Leila solved two expressions in different ways. Complete the equations to show how they thought. Then write the product.

a. 5×27	**b.** 4×38
Alejandro $5 \times (20 + 7) = 5 \times$ _____ $+ 5 \times$ _____	**Alejandro** $4 \times (30 + 8) = 4 \times$ _____ $+ 4 \times$ _____
Leila $5 \times (25 + 2) = 5 \times$ _____ $+ 5 \times$ _____	**Leila** $4 \times (35 + 3) = 4 \times$ _____ $+ 4 \times$ _____
$5 \times 27 =$ _____	$4 \times 38 =$ _____

This activity first works with multiplication involving three factors, and then with equations where parentheses are needed to indicate the order in which the operation(s) is/are to be completed.

Discuss

Algebra: Working with expressions (without parentheses)

Look at these word problems.

Damon bought 4 bags of marbles. In each bag, there were 5 types of marbles, with 7 of each type. How many marbles did he buy?

Mia bought a vase for $27, some flowers for $34, and a gift card for $6. What was the total cost?

Write an expression to solve each problem.

Are parentheses needed? Explain why or why not.

An **expression** is a combination of numbers and operations that do not show a relationship, for example, 5 × 8 or 40 + 3.

Look at these word problems.

A bag of marbles costs $6. Ruby used $25 to pay for 4 bags of marbles. How much change will she get?

Mr. Blue split $27 equally among his 3 children. He then gave his son Andrew $5 more. How much money did he give Andrew in total?

Write an equation to represent each problem. Use any letter for the unknown amount. You do not need to calculate the answer.

Are parentheses needed? Explain why or why not.

In this activity, expressions are written to represent word problems that involve one or two operations. Parentheses are used to show the order in which operations need to be performed. In these examples, parentheses are not needed.

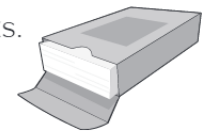
Practice

Algebra: Working with expressions (without parentheses)

1. Write an equation to represent each problem. Use a letter for the unknown amount. You do not need to calculate the answer.

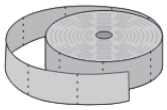
a. Laura needs 4 pieces of lumber. Each piece is 6 ft long and costs $5 a foot. What is the total cost of the lumber she needs?

b. Nathan has collected 32 trading cards. He plans to buy 3 more each week for the next 6 weeks. How many cards will he have after 6 weeks?



c. Three friends each ate 4 pieces of pizza. They then ate an even share of the last 6 pieces. How Many pieces did each friend eat?

d. A movie ticket is $15 for adults and $8 for children. How much would tickets for 3 adults and 7 children cost?



e. At a charity event, Oscar sold 30 muffins for $3 each and 25 sodas for $2 each. How much money did he raise for the charity?

f. Rozene started work at 1 p.m. She worked for $4\frac{1}{4}$ hours, and arrived home $\frac{1}{2}$ an hour later. What time did she arrive home?

2. Circle the part that you would do first in each of these expressions.

a. $12 + 8 \times 4$	**b.** $55 - 6 \times 5$	**c.** $20 \div 4 - 2$	**d.** $90 \times 4 - 30$
e. $80 \times 4 \times 6$	**f.** $100 \div 10 \div 10$	**g.** $16 \times 10 \div 2$	**h.** $12 - 5 + 20$

In this activity, equations are written to represent word problems that involve one or two operations. In these examples, parentheses are not needed.

Discuss

Algebra: Working with expressions (with parentheses)

Look at these word problems.

Sheree buys 3 packs of trading cards. Each pack contains 15 regular cards and 5 special cards. How many cards does she buy?

_____

_____ cards

Carlos had $20. He bought a burger for $5 using a coupon to save $2. How much money does he have left?

_____

$ _____

Four friends paid equal amounts to buy headphones for $19 and a CD for $21 for their teacher. How much did they each contribute?

_____

$ _____

A clothing store sells shirts for $35. If you buy 2 or more, you get $10 off for each shirt. How much would 3 shirts cost?

_____

$ _____

Write an expression to solve each problem.

Are parentheses needed? Explain why or why not.

Complete each calculation to show the solution.

In this activity, expressions are written to represent word problems that involve one or two operations. Parentheses are used to show the order in which the operations should be performed.

Practice

Algebra: Working with expressions (with parentheses)

1. Color the ⬭ beside the expression that matches the steps you would use to calculate the answer to the problem.

a. Dixon had $55 and spent $22 at the movies. He then found $5 in his coat pocket. How much money does he have now?

- ⬭ 55 − (22 + 5)
- ⬭ (22 + 5) − 55
- ⬭ 55 − 22 − 5
- ⬭ (55 − 22) + 5

b. 24 red counters and 6 green counters were shared equally among 10 students. How many counters did each student get?

- ⬭ 24 + 6 ÷ 10
- ⬭ 24 + (6 ÷ 10)
- ⬭ (24 + 6) ÷ 10
- ⬭ 10 ÷ 24 + 6

c. A meal deal comes with a burger for $6 and a drink for $3. What is the total price for 4 meal deals?

- ⬭ 6 + 3 × 4
- ⬭ (4 × 6) + 3
- ⬭ 4 × (6 + 3)
- ⬭ 4 × 6 + 3

d. Nicole wins $25 in a competition. She spends $16 and then shares the rest between her 2 children. How much does each child receive?

- ⬭ 25 − 16 ÷ 2
- ⬭ 25 − (16 ÷ 2)
- ⬭ (25 − 16) ÷ 2
- ⬭ 2 ÷ (25 − 16)

2. Write an equation to represent each problem. Use a letter for the unknown amount.

a. Stella plans to walk 20 miles during the week. On Monday she walks 4 miles, and Tuesday she walks 5 miles. How many more miles does she have to walk?

_____

b. Gavin works 3 hours before lunch and 5 hours after lunch. How many hours will he work in 4 days?

_____

c. William receives $5 pocket money each week. He saves $2 each week and spends the rest. How much will he spend in 6 weeks?

_____

d. Daniela has 12 marbles and Jude has 8 marbles. They decide to share them equally. How many will they each receive?

_____

3. In each equation, draw parentheses if they are needed to make it true.

a. 6 × 0 + 5 = 30

b. 14 + 17 + 19 = 50

c. 100 ÷ 10 × 2 = 5

d. 55 − 13 + 22 = 20

e. 28 − 13 × 3 = 45

f. 36 ÷ 3 × 2 = 6

g. 22 − 2 × 5 ÷ 4 = 25

h. 26 + 4 ÷ 2 + 32 = 47

i. 12 × 2 − 6 + 2 = 16

In this activity, expressions are written to represent word problems that involve one or two operations. Parentheses are used to show the order in which the operations should be performed.

Discuss

Algebra: Working with expressions (with and without parentheses)

Sumi bought three tickets that cost $7 each. She paid with a $50 bill. How much change should she receive?

What expression would you write to calculate the change?

David wrote this equation.

$50 - 3 \times 7 =$ ____

What part of the equation should you do first? How do you know?

Why are parentheses not needed in David's equation?

Could you use them anyway?

If there is **one** type of operation in a sentence, work left to right.

If there is **more than one** type of operation, work left to right in this order.

1. Perform any operation inside parentheses
2. Multiply or divide pairs of numbers
3. Add or subtract pairs of numbers

Read the problem. Then color the ▭ beside the thinking you would use to calculate the answer.

a.	Trina draws a picture of four apples and three bananas. She makes 6 copies of the picture. How many pieces of fruit are there in total?	▭ $(6 + 4) \times 3$ ▭ $(4 + 3) \times 6$ ▭ $6 \times 4 + 4$
b.	Felipe has $20 to spend on apps for his phone. His favorite game costs $12 which is 3 times as much as the cost of the most popular game. How much would Felipe have left if he buys the most popular game?	▭ $20 - (12 \div 3)$ ▭ $12 \div 3 - 20$ ▭ $20 - 12 \div 3$
c.	15 boys and 12 girls are split into 3 even teams. How many children are on each team?	▭ $(15 + 12) \div 3$ ▭ $3 \div 15 + 12$ ▭ $15 + 12 \div 3$

This activity allows students to review the order of operations and whether parentheses are required in equations with one or more operations. Refer to the information point above for guidance.

Practice

Algebra: Working with expressions (with and without parentheses)

1. Write an expression to show how you would solve each problem. Then write the solution.

Problem	Expression	Solution
a. Jamal buys six trading cards for $7 each. He pays with a $50 bill. How much change should he receive?		
b. 14 blue marbles and 21 red marbles are shared equally among 7 students. How many marbles does each child receive?		
c. Five students wash 8 cars for $10 each. If they split the money equally, how much will they each receive?		
d. Samantha rides her bike for 1.5 hours both before and after school. For how long does she ride her bike in one school week?		
e. Allison pays for four tickets to the zoo. A single ticket costs $4. She received $4 in change. How much money did she give the cashier?		

2. Write **true** or **false** beside each statement.

   a. **7,235 x 37 + 23** is 37 times greater than **7,235 + 23**. _____

   b. **(527 − 83) x 17** is 17 times greater than **527 − 83**. _____

This activity allows students to review and practice the order of operations and whether parentheses are required in equations with one or more operations. They are writing an expression and solving the problems.