



A Story of Units

Pleasanton
UNIFIED SCHOOL DISTRICT

Mathematics Curriculum



Grade 4 • MODULE 1

Place Value, Rounding, and Algorithms for
Addition and Subtraction

PROBLEM SETS

Video tutorials: <http://embarc.online>
Info for parents: <http://bit.ly/pusdmath>

Version 3



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GRADE 4 • MODULE 1

Place Value, Rounding, and Algorithms for Addition and Subtraction

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Name _____

Date _____

1. Label the place value charts. Fill in the blanks to make the following equations true. Draw disks in the place value chart to show how you got your answer, using arrows to show any bundling.

a. $10 \times 3 \text{ ones} = \underline{\hspace{2cm}} \text{ ones} = \underline{\hspace{2cm}}$

b. $10 \times 2 \text{ tens} = \underline{\hspace{2cm}} \text{ tens} = \underline{\hspace{2cm}}$

c. $4 \text{ hundreds} \times 10 = \underline{\hspace{2cm}} \text{ hundreds} = \underline{\hspace{2cm}}$

2. Complete the following statements using your knowledge of place value:

- a. 10 times as many as 1 ten is _____ tens.
- b. 10 times as many as _____ tens is 30 tens or _____ hundreds.
- c. _____ as 9 hundreds is 9 thousands.
- d. _____ thousands is the same as 20 hundreds.

Use pictures, numbers, or words to explain how you got your answer for Part (d).

3. Matthew has 30 stamps in his collection. Matthew's father has 10 times as many stamps as Matthew. How many stamps does Matthew's father have? Use numbers or words to explain how you got your answer.

4. Jane saved \$800. Her sister has 10 times as much money. How much money does Jane's sister have? Use numbers or words to explain how you got your answer.

5. Fill in the blanks to make the statements true.

- a. 2 times as much as 4 is _____.
- b. 10 times as much as 4 is _____.
- c. 500 is 10 times as much as _____.
- d. 6,000 is _____ as 600.

6. Sarah is 9 years old. Sarah's grandfather is 90 years old. Sarah's grandfather is how many times as old as Sarah?

Sarah's grandfather is _____ times as old as Sarah.

unlabeled thousands place value chart

Name _____

Date _____

1. As you did during the lesson, label and represent the product or quotient by drawing disks on the place value chart.

a. 10×2 thousands = _____ thousands = _____

b. 10×3 ten thousands = _____ ten thousands = _____

c. 4 thousands $\div 10 =$ _____ hundreds $\div 10 =$ _____

2. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
10×6 tens		
7 hundreds $\times 10$		
3 thousands $\div 10$		
6 ten thousands $\div 10$		
10×4 thousands		

3. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
$(4 \text{ tens } 3 \text{ ones}) \times 10$		
$(2 \text{ hundreds } 3 \text{ tens}) \times 10$		
$(7 \text{ thousands } 8 \text{ hundreds}) \times 10$		
$(6 \text{ thousands } 4 \text{ tens}) \div 10$		
$(4 \text{ ten thousands } 3 \text{ tens}) \div 10$		

4. Explain how you solved 10×4 thousands. Use a place value chart to support your explanation.

5. Explain how you solved $(4 \text{ ten thousands } 3 \text{ tens}) \div 10$. Use a place value chart to support your explanation.
6. Jacob saved 2 thousand dollar bills, 4 hundred dollar bills, and 6 ten dollar bills to buy a car. The car costs 10 times as much as he has saved. How much does the car cost?
7. Last year the apple orchard experienced a drought and did not produce many apples. But this year, the apple orchard produced 45 thousand GrannySmith apples and 9 hundred Red Delicious apples, which is 10 times as many apples as last year. How many apples did the orchard produce last year?

unlabeled millions place value chart

Name _____

Date _____

1. Rewrite the following numbers including commas where appropriate:

a. 1234 _____ b. 12345 _____ c. 123456 _____

d. 1234567 _____ e. 12345678901 _____

2. Solve each expression. Record your answer in standard form.

Expression	Standard Form
5 tens + 5 tens	
3 hundreds + 7 hundreds	
400 thousands + 600 thousands	
8 thousands + 4 thousands	

3. Represent each addend with place value disks in the place value chart. Show the composition of larger units from 10 smaller units. Write the sum in standard form.

a. 4 thousands + 11 hundreds = _____

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

b. $24 \text{ ten thousands} + 11 \text{ thousands} =$ _____

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

4. Use digits or disks on the place value chart to represent the following equations. Write the product in standard form.

a. $10 \times 3 \text{ thousands} =$ _____

How many thousands are in the answer? _____

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

b. $(3 \text{ ten thousands } 2 \text{ thousands}) \times 10 =$ _____

How many thousands are in the answer? _____

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

c. $(32 \text{ thousands } 1 \text{ hundred } 4 \text{ ones}) \times 10 =$ _____

How many thousands are in your answer? _____

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

5. Lee and Gary visited South Korea. They exchanged their dollars for South Korean bills. Lee received 15 ten thousand South Korean bills. Gary received 150 thousand bills. Use disks or numbers on a place value chart to compare Lee's and Gary's money.



Name _____

Date _____

1. a. On the place value chart below, label the units, and represent the number 90,523.

--	--	--	--	--	--	--

- b. Write the number in word form.

- c. Write the number in expanded form.

2. a. On the place value chart below, label the units, and represent the number 905,203.

--	--	--	--	--	--	--

- b. Write the number in word form.

- c. Write the number in expanded form.

3. Complete the following chart:

Standard Form	Word Form	Expanded Form
	two thousand, four hundred eighty	
		$20,000 + 400 + 80 + 2$
	sixty-four thousand, one hundred six	
604,016		
960,060		

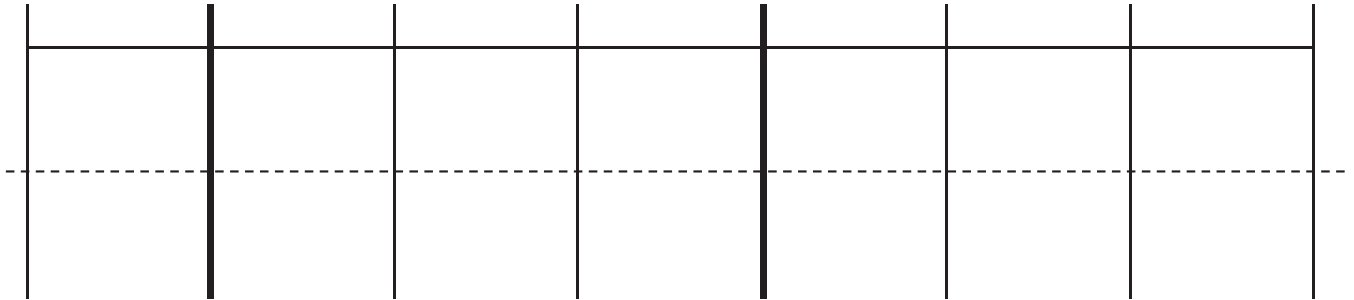
4. Blackrhinos are endangered, with only 4,400 left in the world. Timothy read that number as “four thousand, four hundred.” His father read the number as “44 hundred.” Who read the number correctly? Use pictures, numbers, or words to explain your answer.

Name _____

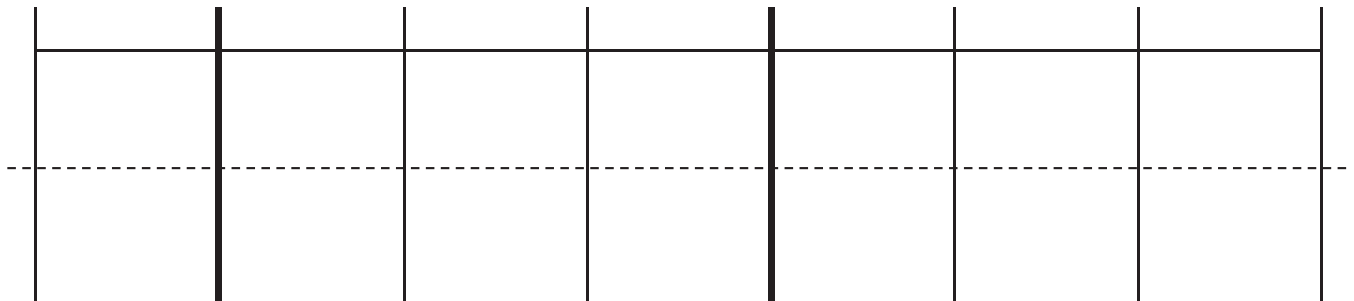
Date _____

1. Label the units in the place value chart. Draw place value disks to represent each number in the place value chart. Use $<$, $>$, or $=$ to compare the two numbers. Write the correct symbol in the circle.

a. $600,015$ $60,015$



b. $409,004$ $440,002$



2. Compare the two numbers by using the symbols $<$, $>$, and $=$. Write the correct symbol in the circle.

a. $342,001$ $94,981$

b. $500,000 + 80,000 + 9,000 + 100$ five hundred eight thousand, nine hundred one

c. 9 hundred thousands 8 thousands 9 hundreds 3 tens 908,930

d. 9 hundreds 5 ten thousands 9 ones 6 ten thousands 5 hundreds 9 ones

3. Use the information in the chart below to list the height in feet of each mountain from least to greatest. Then, name the mountain that has the lowest elevation in feet.

Name of Mountain	Elevation in Feet (ft)
Allen Mountain	4,340 ft
Mount Marcy	5,344 ft
Mount Haystack	4,960 ft
Slide Mountain	4,240 ft

4. Arrange these numbers from least to greatest: 8,002 2,080 820 2,008 8,200
5. Arrange these numbers from greatest to least: 728,000 708,200 720,800 87,300
6. One astronomical unit, or 1 AU, is the approximate distance from Earth to the sun. The following are the approximate distances from Earth to nearby stars given in AUs:

Alpha Centauri is 275,725 AUs from Earth.

Proxima Centauri is 268,269 AUs from Earth.

Epsilon Eridani is 665,282 AUs from Earth.

Barnard's Star is 377,098 AUs from Earth.

Sirius is 542,774 AUs from Earth.

List the names of the stars and their distances in AUs in order from closest to farthest from Earth.

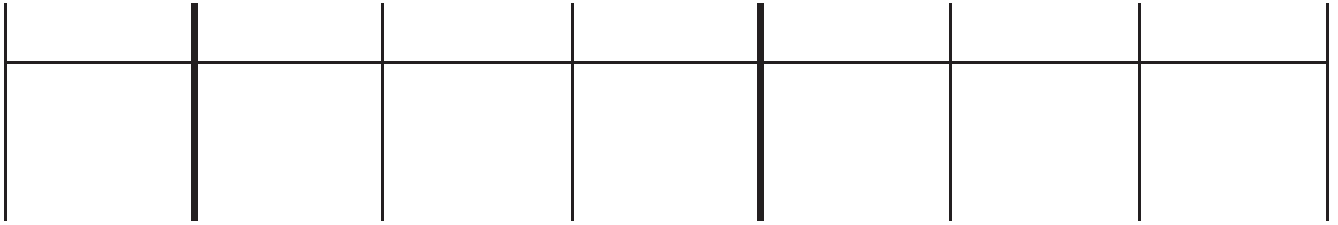
unlabeled hundred thousands place value chart

Name _____

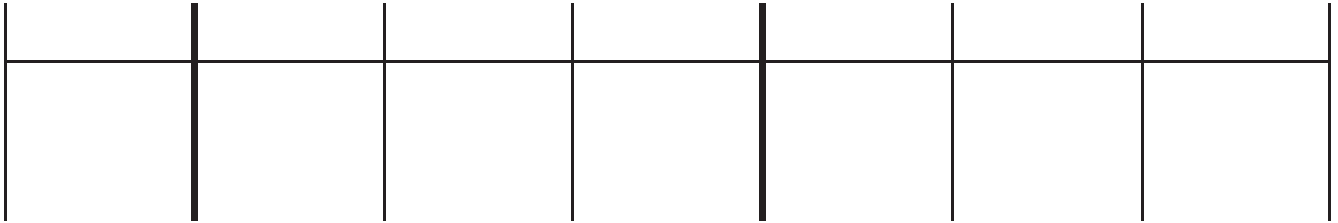
Date _____

1. Label the place value chart. Use place value disks to find the sum or difference. Write the answer in standard form on the line.

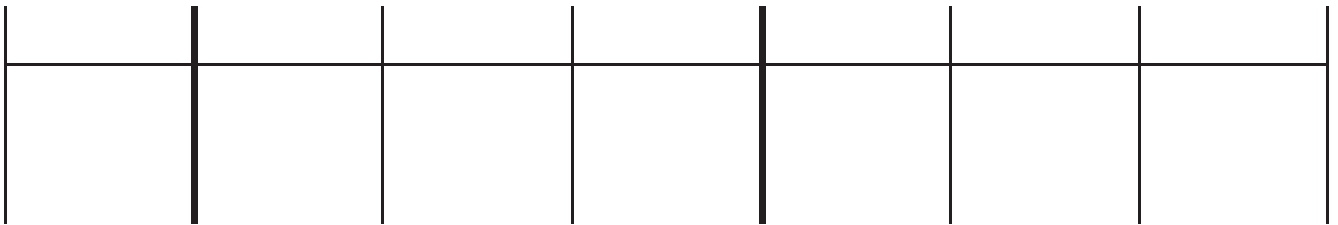
a. 10,000 more than six hundred five thousand, four hundred seventy-two is _____.



b. 100 thousand less than $400,000 + 80,000 + 1,000 + 30 + 6$ is _____.



c. 230,070 is _____ than 130,070.



2. Lucy plays an online math game. She scored 100,000 more points on Level 2 than on Level 3. If she scored 349,867 points on Level 2, what was her score on Level 3? Use pictures, words, or numbers to explain your thinking.

3. Fill in the blank for each equation.

a. $10,000 + 40,060 =$ _____

b. $21,195 - 10,000 =$ _____

c. $999,000 + 1,000 =$ _____

d. $129,231 - 100,000 =$ _____

e. $122,000 = 22,000 +$ _____

f. $38,018 = 39,018 -$ _____

4. Fill in the empty boxes to complete the patterns.

a.

150,010		170,010		190,010	
---------	--	---------	--	---------	--

Explain in pictures, numbers, or words how you found your answers.

b.

	898,756	798,756			498,756
--	---------	---------	--	--	---------

Explain in pictures, numbers, or words how you found your answers.

c.

744,369	743,369		741,369		
---------	---------	--	---------	--	--

Explain in pictures, numbers, or words how you found your answers.

d.

	118,910			88,910	78,910
--	---------	--	--	--------	--------

Explain in pictures, numbers, or words how you found your answers.

Name _____

Date _____

1. Round to the nearest thousand. Use the number line to model your thinking.

a. $6,700 \approx$ _____



b. $9,340 \approx$ _____



c. $16,401 \approx$ _____



d. $39,545 \approx$ _____



e. $399,499 \approx$ _____



f. $840,007 \approx$ _____



2. A pilot wanted to know about how many kilometers he flew on his last 3 flights. From NYC to London, he flew 5,572 km. Then, from London to Beijing, he flew 8,147 km. Finally, he flew 10,996 km from Beijing back to NYC. Round each number to the nearest thousand, and then find the sum of the rounded numbers to estimate about how many kilometers the pilot flew.

3. Mrs. Smith's class is learning about healthy eating habits. The students learned that the average child should consume about 12,000 calories each week. Kerry consumed 12,748 calories last week. Tyler consumed 11,702 calories last week. Round to the nearest thousand to find who consumed closer to the recommended number of calories. Use pictures, numbers, or words to explain.

4. For the 2013-2014 school year, the cost of tuition at Cornell University was \$43,000 when rounded to the nearest thousand. What is the greatest possible amount the tuition could be? What is the least possible amount the tuition could be?

Name _____

Date _____

Complete each statement by rounding the number to the given place value. Use the number line to show your work.

1. a. 53,000 rounded to the nearest ten thousand is _____.



2. a. 240,000 rounded to the nearest hundred thousand is _____.



- b. 42,708 rounded to the nearest ten thousand is _____.



- b. 449,019 rounded to the nearest hundred thousand is _____.



- c. 406,823 rounded to the nearest ten thousand is _____.



- c. 964,103 rounded to the nearest hundred thousand is _____.



3. 975,462 songs were downloaded in one day. Round this number to the nearest hundred thousand to estimate how many songs were downloaded in one day. Use a number line to show your work.

4. This number was rounded to the nearest ten thousand. List the possible digits that could go in the thousands place to make this statement correct. Use a number line to show your work.

$$13_ ,644 \approx 130,000$$

5. Estimate the difference by rounding each number to the given place value.

$$712,350 - 342,802$$

- a. Round to the nearest ten thousands.

- b. Round to the nearest hundred thousands.

Name _____

Date _____

1. Round to the nearest thousand.

a. $5,300 \approx$ _____

b. $4,589 \approx$ _____

c. $42,099 \approx$ _____

d. $801,504 \approx$ _____

e. Explain how you found your answer for Part (d).

2. Round to the nearest ten thousand.

a. $26,000 \approx$ _____

b. $34,920 \approx$ _____

c. $789,091 \approx$ _____

d. $706,286 \approx$ _____

e. Explain why two problems have the same answer. Write another number that has the same answer when rounded to the nearest ten thousand.

3. Round to the nearest hundred thousand.

a. $840,000 \approx$ _____

b. $850,471 \approx$ _____

c. $761,004 \approx$ _____

d. $991,965 \approx$ _____

e. Explain why two problems have the same answer. Write another number that has the same answer when rounded to the nearest hundred thousand.

Name _____

Date _____

1. Round 543,982 to the nearest

- a. thousand: _____.
- b. ten thousand: _____.
- c. hundred thousand: _____.

2. Complete each statement by rounding the number to the given place value.

- a. 2,841 rounded to the nearest hundred is _____.
- b. 32,851 rounded to the nearest hundred is _____.
- c. 132,891 rounded to the nearest hundred is _____.
- d. 6,299 rounded to the nearest thousand is _____.
- e. 36,599 rounded to the nearest thousand is _____.
- f. 100,699 rounded to the nearest thousand is _____.
- g. 40,984 rounded to the nearest ten thousand is _____.
- h. 54,984 rounded to the nearest ten thousand is _____.
- i. 997,010 rounded to the nearest ten thousand is _____.
- j. 360,034 rounded to the nearest hundred thousand is _____.
- k. 436,709 rounded to the nearest hundred thousand is _____.
- l. 852,442 rounded to the nearest hundred thousand is _____.

Name _____

Date _____

1. Solve the addition problems below using the standard algorithm.

a.
$$\begin{array}{r} 6,311 \\ + 268 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 6,311 \\ + 1,268 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 6,314 \\ + 1,268 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 6,314 \\ + 2,493 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 8,314 \\ + 2,493 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 12,378 \\ + 5,463 \\ \hline \end{array}$$

g.
$$\begin{array}{r} 52,098 \\ + 6,048 \\ \hline \end{array}$$

h.
$$\begin{array}{r} 34,698 \\ + 71,840 \\ \hline \end{array}$$

i.
$$\begin{array}{r} 54,481 \\ + 35,644 \\ \hline \end{array}$$

j. $527 + 275 + 752$

k. $38,193 + 6,376 + 241,457$

Draw a tape diagram to represent each problem. Use numbers to solve, and write your answer as a statement.

- In September, Liberty Elementary School collected 32,537 cans for a fundraiser. In October, they collected 207,492 cans. How many cans were collected during September and October?
- A baseball stadium sold some burgers. 2,806 were cheeseburgers. 1,679 burgers didn't have cheese. How many burgers did they sell in all?
- On Saturday night, 23,748 people attended the concert. On Sunday, 7,570 more people attended the concert than on Saturday. How many people attended the concert on Sunday?

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

millions place value chart

Name _____

Date _____

Estimate and then solve each problem. Model the problem with a tape diagram. Explain if your answer is reasonable.

1. For the bake sale, Connie baked 144 cookies. Esther baked 49 more cookies than Connie.
 - a. About how many cookies did Connie and Esther bake? Estimate by rounding each number to the nearest ten before adding.

- b. Exactly how many cookies did Connie and Esther bake?

- c. Is your answer reasonable? Compare your estimate from (a) to your answer from (b). Write a sentence to explain your reasoning.

3. From 2010 to 2011, the population of Queens increased by 16,075. Brooklyn's population increased by 11,870 more than the population increase of Queens.
- Estimate the total combined population increase of Queens and Brooklyn from 2010 to 2011. (Round the addends to estimate.)
 - Find the actual total combined population increase of Queens and Brooklyn from 2010 to 2011.
 - Assess the reasonableness of your answer in (b). Use your estimate from (a) to explain.

4. During National Recycling Month, Mr. Yardley's class spent 4 weeks collecting empty cans to recycle.

Week	Number of Cans Collected
1	10,827
2	
3	10,522
4	20,011

- a. During Week 2, the class collected 1,256 more cans than they did during Week 1. Find the total number of cans Mr. Yardley's class collected in 4 weeks.

- b. Assess the reasonableness of your answer in (a) by estimating the total number of cans collected.

Name _____

Date _____

1. Use the standard algorithm to solve the following subtraction problems.

a.
$$\begin{array}{r} 7,525 \\ -3,502 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 17,525 \\ -13,502 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 6,625 \\ -4,417 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 4,625 \\ -435 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 6,500 \\ -470 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 6,025 \\ -3,502 \\ \hline \end{array}$$

g.
$$\begin{array}{r} 23,640 \\ -14,630 \\ \hline \end{array}$$

h.
$$\begin{array}{r} 431,925 \\ -204,815 \\ \hline \end{array}$$

i.
$$\begin{array}{r} 219,925 \\ -121,705 \\ \hline \end{array}$$

Draw a tape diagram to represent each problem. Use numbers to solve, and write your answer as a statement. Check your answers.

2. What number must be added to 13,875 to result in a sum of 25,884?

3. Artist Michelangelo was born on March 6, 1475. Author Mem Fox was born on March 6, 1946. How many years after Michelangelo was born was Fox born?

4. During the month of March, 68,025 pounds of king crab were caught. If 15,614 pounds were caught in the first week of March, how many pounds were caught in the rest of the month?

5. James bought a used car. After driving exactly 9,050 miles, the odometer read 118,064 miles. What was the odometer reading when James bought the car?

Name _____

Date _____

1. Use the standard algorithm to solve the following subtraction problems.

$$\begin{array}{r} \text{a.} \quad 2,460 \\ -1,370 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b.} \quad 2,460 \\ -1,470 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c.} \quad 97,684 \\ -49,700 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d.} \quad 2,460 \\ -1,472 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e.} \quad 124,306 \\ -31,117 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f.} \quad 97,684 \\ -4,705 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g.} \quad 124,006 \\ -121,117 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h.} \quad 97,684 \\ -47,705 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i.} \quad 124,060 \\ -31,117 \\ \hline \end{array}$$

Draw a tape diagram to represent each problem. Use numbers to solve, and write your answer as a statement. Check your answers.

2. There are 86,400 seconds in one day. If Mr. Liegel is at work for 28,800 seconds a day, how many seconds a day is he away from work?

3. A newspaper company delivered 240,900 newspapers before 6 a.m. on Sunday. There were a total of 525,600 newspapers to deliver. How many more newspapers needed to be delivered on Sunday?
4. A theater holds a total of 2,013 chairs. 197 chairs are in the VIP section. How many chairs are not in the VIP section?
5. Chuck’s mom spent \$19,155 on a new car. She had \$30,064 in her bank account. How much money does Chuck’s mom have after buying the car?

Name _____

Date _____

1. Use the standard subtraction algorithm to solve the problems below.

$$\begin{array}{r} \text{a.} \quad 1\ 0\ 1, \ 6\ 6\ 0 \\ - \quad 9\ 1, \ 6\ 8\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b.} \quad 1\ 0\ 1, \ 6\ 6\ 0 \\ - \quad 9, \ 9\ 8\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c.} \quad 2\ 4\ 2, \ 5\ 6\ 1 \\ - \quad 4\ 4, \ 7\ 0\ 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d.} \quad 2\ 4\ 2, \ 5\ 6\ 1 \\ - \quad 7\ 4, \ 9\ 8\ 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e.} \quad 1, \ 0\ 0\ 0, \ 0\ 0\ 0 \\ - \quad 5\ 9\ 2, \ 0\ 0\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f.} \quad 1, \ 0\ 0\ 0, \ 0\ 0\ 0 \\ - \quad 5\ 9\ 2, \ 5\ 0\ 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g.} \quad 6\ 0\ 0, \ 6\ 5\ 8 \\ - \quad 5\ 9\ 2, \ 5\ 6\ 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h.} \quad 6\ 0\ 0, \ 0\ 0\ 0 \\ - \quad 5\ 9\ 2, \ 5\ 6\ 9 \\ \hline \end{array}$$

Name _____

Date _____

Estimate first, and then solve each problem. Model the problem with a tape diagram. Explain if your answer is reasonable.

1. On Monday, a farmer sold 25,196 pounds of potatoes. On Tuesday, he sold 18,023 pounds. On Wednesday, he sold some more potatoes. In all, he sold 62,409 pounds of potatoes.
 - a. About how many pounds of potatoes did the farmer sell on Wednesday? Estimate by rounding each value to the nearest thousand, and then compute.
 - b. Find the precise number of pounds of potatoes sold on Wednesday.
 - c. Is your precise answer reasonable? Compare your estimate from (a) to your answer from (b). Write a sentence to explain your reasoning.

2. A gas station had two pumps. Pump A dispensed 241,752 gallons. Pump B dispensed 113,916 more gallons than Pump A.
- a. About how many gallons did both pumps dispense? Estimate by rounding each value to the nearest hundred thousand and then compute.

 - b. Exactly how many gallons did both pumps dispense?

 - c. Assess the reasonableness of your answer in (b). Use your estimate from (a) to explain.

3. Martin's car had 86,456 miles on it. Of that distance, Martin's wife drove 24,901 miles, and his son drove 7,997 miles. Martin drove the rest.
- About how many miles did Martin drive? Round each value to estimate.
 - Exactly how many miles did Martin drive?
 - Assess the reasonableness of your answer in (b). Use your estimate from (a) to explain.

4. A class read 3,452 pages the first week and 4,090 more pages in the second week than in the first week. How many pages had they read by the end of the second week? Is your answer reasonable? Explain how you know using estimation.
5. A cargo plane weighed 500,000 pounds. After the first load was taken off, the airplane weighed 437,981 pounds. Then 16,478 more pounds were taken off. What was the total number of pounds of cargo removed from the plane? Is your answer reasonable? Explain.

3. A pair of hippos weighs 5,201 kilograms together. The female weighs 2,038 kilograms. How much more does the male weigh than the female?
4. A copper wire was 240 meters long. After 60 meters was cut off, it was double the length of a steel wire. How much longer was the copper wire than the steel wire at first?

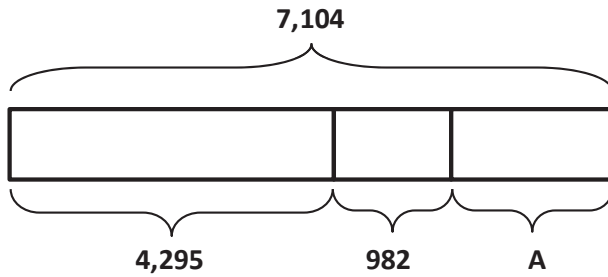
3. In the first week of June, a restaurant sold 10,345 omelets. In the second week, 1,096 fewer omelets were sold than in the first week. In the third week, 2 thousand more omelets were sold than in the first week. In the fourth week, 2 thousand fewer omelets were sold than in the first week. How many omelets were sold in all in June?

Name _____

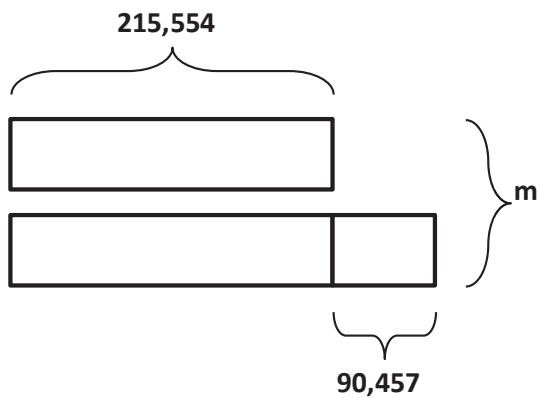
Date _____

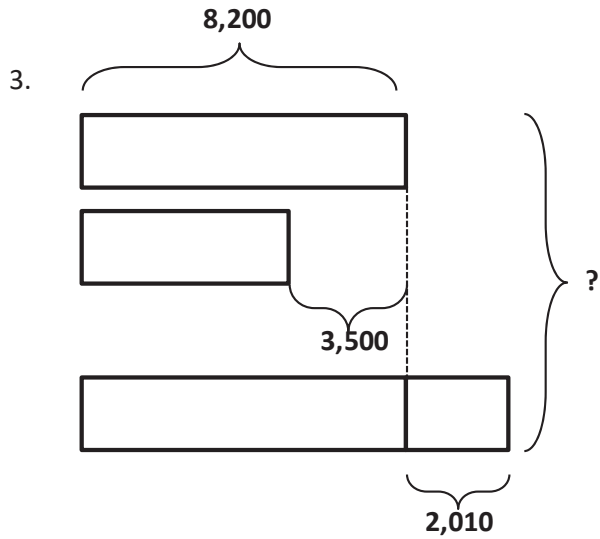
Using the diagrams below, create your own word problem. Solve for the value of the variable.

1.



2.





4. Draw a tape diagram to model the following equation. Create a word problem. Solve for the value of the variable.

$$26,854 = 17,729 + 3,731 + A$$





Video tutorials: <http://embarc.online>
Info for parents: <http://bit.ly/pusdmath>