Name Date

GRADE 4, UNIT 6, SECTION A

Practice Problems

Problem 1 (Pre-Unit)

Here is a list of the first ten multiples of 5:

5, 10, 15, 20, 25, 30, 35, 40, 45, 50

a. Circle the multiples of 10 in the list.

b. What do you notice about where the multiples of 10 are on the list?

c. Why do you think that is?

Problem 2 (Pre-Unit)

Find the value of each expression.

a. 14×7

b. 13×6

c. 23×4

d. $85 \div 5$

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Problem 3 (Pre-Unit)

There are 418 students at Jada's school. There are 135 fewer students at Noah's school. How many students are there at Jada's and Noah's schools together? Explain or show your reasoning.

Problem 4 (Pre-Unit)

a. What is the value of the digit 6 in each of the numbers?

- 165
- 18,622
- 675,219

b. Complete this statement so that it is true:

The value of the 6 in 675,219 is _____ times that of the 6 in 165.

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Problem 5 (Pre-Unit)

Find the value of each sum and difference.

a.

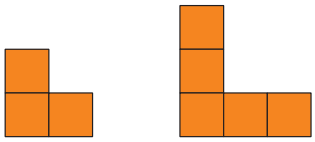
$$\begin{array}{r} 15,826 \\ +\ 44,371 \\ \hline \end{array}$$

b.

$$\begin{array}{r} 33,517 \\ -\ 16,322 \\ \hline \end{array}$$

Problem 6 (Lesson 1)

a. Mai follows a rule to build a pattern of square blocks. What might the next 2 shapes in Mai's pattern look like? Sketch the shapes or describe them.



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b. Will Mai's pattern ever use 20 squares? Explain your reasoning.

Problem 7 (Lesson 2)

Han types the letters a, s, d, f and then repeats them in that order, over and over.

a. What is the 5th letter Han will type? What about the 10th? The 20th?

b. If Han numbers the letters he types, starting with 1 for the first a, what numbers will go with the first 6 f's he types?

c. What do you notice about the numbers for the f's?

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Problem 8 (Lesson 3)

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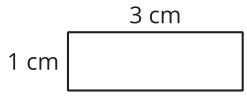
Here is the first rectangle in a pattern. For each step in a pattern of rectangles, the short side stays the same and the long side grows by 2 centimeters.



a. Draw the next 4 steps in the rectangle pattern. Include the length and width of each rectangle.

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b. Can the perimeter of the rectangle, in centimeters, be an even number? Explain your reasoning.

c. Can the area of the rectangle, in square centimeters, be an even number? Explain your reasoning.

Problem 9 (Lesson 4)

a. Make a list of the first ten multiples of 8.

b. What pattern do you see in the digits in the ones place? How are the digits changing?

c. Why do you think it is changing that way?

Problem 10 (Exploration)

a. Make a list of the multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10. Stop when you get a multiple of 10. For example, for 2, the list is 2, 4, 6, 8, 10.

b. What do you notice about your lists? Make some observations.

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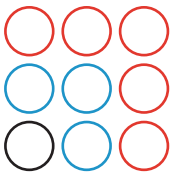
Problem 11 (Exploration)

Tyler draws this picture and writes the equation $1 + 3 + 5 = 9$.



a. How do you think the equation relates to the picture?

b. Tyler keeps drawing circles to make larger squares. How many new circles does he need to draw to make a 4-by-4 square, and then a 5-by-5 square?

c. What pattern do you notice in the number of circles Tyler adds each time?

d. Why do you think the number of circles is increasing that way?

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Problem 12 (Exploration)

A growing pattern of squares that makes rectangles is shown here.

step 1 step 2 step 3

a. Find the area and perimeter of the rectangles in steps 2 and 3.

step	number of squares	area of rectangle (square units)	perimeter of rectangle (units)
1	2	2	6
2			
3			

b. Consider patterns you see in the chart. Extend the values in each column as if the pattern continued in steps 4 and 5.

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c. Draw the next two diagrams (for steps 4 and 5). Were your predictions for the area and perimeter of each rectangle correct?

d. How would you describe this pattern to a classmate?

Problem 13 (Exploration)

Mai and Tyler are each making their own pattern.

Some of their pattern symbols are the same, some are different. The table shows the first six symbols in Mai's pattern and the first four in Tyler's pattern.

Mai's pattern	@	#	$	@	#	$		
Tyler's pattern	~	@	~	@				

a. What are the next two symbols in Tyler's pattern? Explain your reasoning.

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b. At what step do you think Mai and Tyler will next both draw the same symbol at the same time? Explain or show how you know.

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GRADE 4, UNIT 6, SECTION B

Practice Problems

Problem 1 (Lesson 5)

Mai has a sheet of stickers with 23 rows and 8 stickers in each row.

a. Does Mai have more or less than 100 stickers? Explain your reasoning.

b. Find how many stickers Mai has. Explain or show your reasoning.

Problem 2 (Lesson 6)

Find the value of 7×64. Use a diagram if it is helpful.

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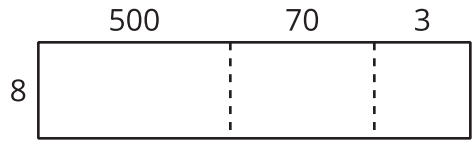
Problem 3 (Lesson 7)

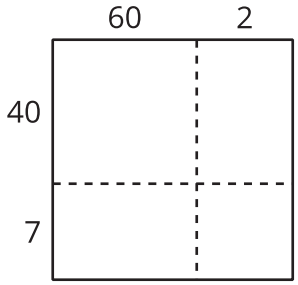
a. Use the diagram to find the value of 8×573.



b. Find the value of $4 \times 3{,}516$.

Problem 4 (Lesson 8)

a. Use the diagram to find the value of 47×62.



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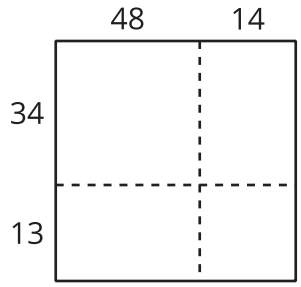
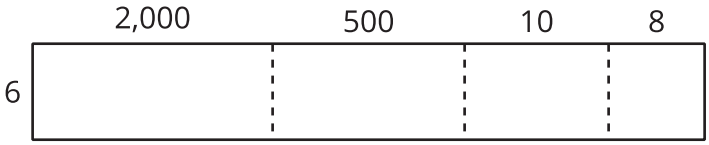
b. Would this diagram be helpful to find the value of 47×62? Explain your reasoning.



Problem 5 (Lesson 9)

The diagram and calculations show two ways for finding the value of $2{,}518 \times 6$.



$$\begin{array}{r} 2,518 \\ \times \quad 6 \\ \hline 1 \\ 48 \\ 600 \\ 3,000 \\ +\ 12,000 \\ \hline 15,108 \end{array}$$

a. How does each part of the vertical calculation relate to the diagram?

b. Find the value of $3{,}172 \times 5$ using a method of your choice.

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Problem 6 (Lesson 10)

Here is an incomplete calculation that uses partial products of 65×43.

a. Write multiplication expressions that the numbers 15, 180, 200, and 2,400 each represent. Then, find the value of 65×43.

$$\begin{array}{r} 65 \\ \times\ 43 \\ \hline 15 \\ 180 \\ 200 \\ +\ 2,400 \\ \hline \end{array}$$

b. Find the value of the product 45×38.

Problem 7 (Lesson 11)

Here is how Elena calculated the value of 723×3.

$$\begin{array}{r} 723 \\ \times\ \ 3 \\ \hline 2,169 \end{array}$$

a. Where does the 9 in Elena's calculation come from? What about the 6?

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b. Where do the 2 and the 1 in calculation come from?

c. Use Elena's method to find the value of 534×2.

Problem 8 (Lesson 12)

There are 4,218 students in school district A. School district B has 3 times as many students as school district A. How many students are in school district B? Explain or show your reasoning.

Problem 9 (Exploration)

Clare was double checking her answers for some products. Without doing the computation again, she knew that these answers were incorrect. How might Clare have known?

a. $5 \times 5{,}783 = 27{,}914$

b. $7 \times 8{,}419 = 54{,}253$

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c. $9 \times 9{,}999 = 99{,}999$

Problem 10 (Exploration)

Here is Mai's strategy to find the value of $9 \times 8{,}235$.

$$\begin{array}{r} 82,350 \\ -\quad 8,235 \\ \hline 74,115 \end{array}$$

a. Explain why Mai's method works.

b. Use Mai's method to find the value of $9 \times 6{,}789$.

c. Find the value of $9 \times 6{,}789$ using a strategy you learned. How is Mai's method like yours? How is it different than yours?

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GRADE 4, UNIT 6, SECTION C

Practice Problems

Problem 1 (Lesson 13)

a. If 5 pencils cost 95 cents, how much does each pencil cost? Explain or show your reasoning.

b. If 68 colored pencils are split evenly between 4 students, how many pencils does each student get? Explain or show your reasoning.

Problem 2 (Lesson 14)

Priya writes the multiples of a number and 63 is on her list. Priya's number is not 1.

a. What could Priya's number be? Explain your reasoning.

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b. 112 is the last number on Priya's list. What is Priya's number? How many numbers are on Priya's list?

Problem 3 (Lesson 15)

Clare has 194 square tiles. Can Clare put all of her tiles in 6 rows with the same number of tiles in each row? Explain or show your reasoning.

Problem 4 (Lesson 16)

A long, rectangular hallway is 8 feet wide and has an area of 368 square feet. How long is the hallway?

a. Write a multiplication equation and a division equation that represent the situation.

b. Find the length of the hallway. Explain or show your reasoning.

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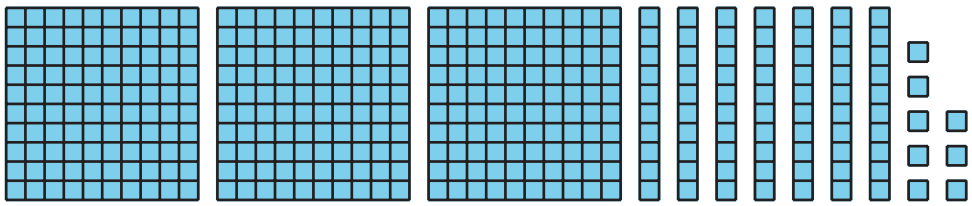
Problem 5 (Lesson 17)

Here is 378 represented with base-ten blocks.



Use words, diagrams, or equations to show how to use the base-ten blocks to find the value of $378 \div 6$.

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Problem 6 (Lesson 18)

Here are two incomplete calculations of $864 \div 4$. Complete each calculation to find the value of the quotient.

a.

$$\begin{aligned} 800 \div 4 &= 200 \\ 40 \div 4 &= \\ 20 \div 4 &= \\ 4 \div 4 &= \\ \hline 864 \div 4 &= \end{aligned}$$

b.

$$\begin{array}{rll} & 100 & \\ & 100 & \\ 4\overline{)} & 864 & \\ - & 400 & 4 \times 100 \\ \hline & 464 & \\ - & 400 & 4 \times 100 \\ \hline \end{array}$$

Problem 7 (Lesson 19)

a. Use partial quotients to find the value of $637 \div 4$.

b. If there are 637 toothpicks and 4 people, what could $637 \div 4$ mean in this situation? What could each step you took in the algorithm mean?

c. What does the value of the quotient represent in the situation?

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Problem 8 (Lesson 20)

There are 875 peaches at the orchard. Each box contains 9 peaches. How many boxes are needed for the peaches? Explain your reasoning.

Problem 9 (Exploration)

Consider the expression $286 \div 5$.

a. Write a division story with a question that can be answered by finding the value of $286 \div 5$. Then, answer the question.

b. Write a different story with a question that can be answered by finding the value of $286 \div 5$ but with a different answer than your first story. Answer the question.

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Problem 10 (Exploration)

Mai has a special way to see that 531 is a multiple of 9. She says, “Each hundred is 11 nines and 1 more and each ten is one nine and 1 more, so 531 is 58 nines and 9 more.”

a. Make sense of and explain Mai’s reasoning. Is 531 a multiple of 9?

b. Use Mai’s reasoning to decide if 648 is a multiple of 9.

Name Date

GRADE 4, UNIT 6, SECTION D

Practice Problems

Problem 1 (Lesson 21)

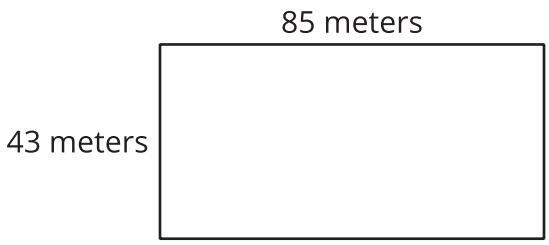
a. An author took a 4-hour airplane flight for a work trip. The plane flew 478 miles each hour. How many miles did she travel?

b. A photographer took a 4-hour drive for his work trip. The car traveled 57 miles each hour. How many miles did he travel?

c. How many miles further did the author travel than the photographer?

Problem 2 (Lesson 22)

The diagram shows the side lengths of a sports field.



a. What is the perimeter of the field? Explain or show your reasoning.

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b. What is the area of the field? Explain or show your reasoning.

Problem 3 (Lesson 23)

The table shows the number of students who have different numbers of pets at a school.

How many pets do all the students have together? Explain or show your reasoning.

number of pets	number of students
1	218
2	167
3	287
4	138

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Problem 4 (Lesson 24)

A builder is covering the floor of a rectangular room that is 23 feet by 25 feet with tiles that are 1 foot by 1 foot. The tiles are sold in boxes of 12.

Diego says 59 boxes are needed to cover the floor, and that there will be a few leftover tiles.

a. Is Diego's answer reasonable? Explain or show your reasoning.

b. How many boxes of tiles would you get to cover this floor? Explain or show your reasoning.

Problem 5 (Exploration)

Find a rectangular room at home or in the school.

a. Which unit would you choose for measuring the length and width: inches, feet, or yards? Explain your reasoning.

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b. Measure the length and width to the nearest whole number.

c. Find the perimeter and area of the room.

d. Can you find a length and width pair for a room that would have the same perimeter but a different area?

e. Can you find a length and width pair for a room that would have the same area but a different perimeter?

Problem 6 (Exploration)

The area of a rectangle is 720 square centimeters. One side is 6 centimeters longer than the other. What is the perimeter of the rectangle? Explain or show your reasoning.