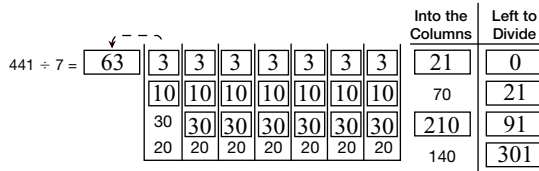


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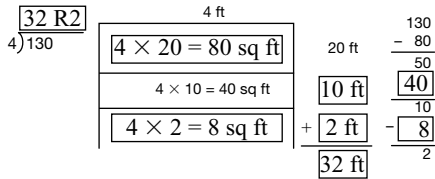
Moving Ahead with Division

Questions 1–30 (SAB pp. 521–535)

1.



2.



3. $76 \div 4$. First I put chocolates in each cup. I have divided of the chocolates so far. I still have left to divide.

Next I put 5 more chocolates in each cup. I have divided of the chocolates so far. I still have left to divide.

Finally I put more chocolates in each cup. Now I have divided of the chocolates. I have no more chocolates to divide.

There are chocolates in each cup. So, $76 \div 4 = \text{\textinput{type="text" value="19"/>$.

4.

$$\begin{array}{r} \boxed{36} \\ 8 \overline{)288} \end{array}$$

Possible explanation: I added the numbers in one of the columns.

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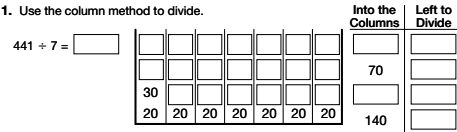
Moving Ahead with Division

Column Method and Rectangle Model

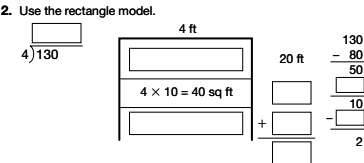
✓ **Self-Check: Questions 1-2**

For Self-Check Questions 1 and 2, fill in the boxes below to complete the solutions to the division problems shown.

1. Use the column method to divide.



2. Use the rectangle model.



Use the Self-Check questions and the menu to choose practice with the column method and rectangle model for division.

Can I Do This?	Working On It! I could use some extra help.	Getting It! I just need some more practice.	Got It! I'm ready for a challenge.
Divide using the column method.	★ Questions 3-7	● Questions 5-10	■ Questions 8-11
Divide using the rectangle model.	★ Question 12	● Questions 13-14	■ Questions 13-14

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★3. Linda wants to divide 76 chocolates evenly into 4 cups. Work with a partner and use connecting cubes to show each of her steps. Fill in the blank boxes as you go.



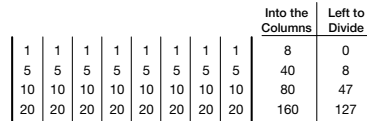
First I put chocolates in each cup. I have divided of chocolates so far. I still have left to divide.

Next I put 5 more chocolates in each cup. Altogether, I have divided of the chocolates so far. I still have left to divide.

Finally I put more chocolates in each cup. Now I have divided of the chocolates. I have no more chocolates to divide.

There are chocolates in each cup. So, $76 \div 4 = \text{\textinput{type="text"/>$.

★4. Roberto uses the column method to divide:



What is the answer to the division problem? $8 \overline{)288}$

Explain how you found the answer.

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Answer Key • Lesson 5 • Workshop: Division Concepts

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For Questions 5–7, use connecting cubes to solve the problems. Record each of your steps in the columns as you go.

★●5. $93 \div 3$

Into the Columns	Left to Divide

$93 \div 3 = \underline{\quad}$

★●6. Jacob wants to save \$75 over the next 5 months by saving the same amount each month. How much should he save each month?

Into the Columns	Left to Divide

$\underline{\quad} \div \underline{\quad} = \underline{\quad}$

★●7. Ming has 115 chocolates to share evenly among 8 students. How many chocolates will each student get?

Into the Columns	Left to Divide

Were there any chocolates left over that you could not divide evenly? How many? (This number of chocolates is the remainder.)

$\underline{\quad} \div \underline{\quad} = \underline{\quad} \text{ R } \underline{\quad}$

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For Questions 8–11 solve the problems using the column method.

●●8. $575 \div 4$

Into the Columns	Left to Divide

$575 \div 4 = \underline{\quad}$

●●9. A. Five families held a yard sale and made \$643. If they divide the money equally, how much will each family earn to the nearest dollar?

Into the Columns	Left to Divide

B. Is there any money left over? If so, how should the families take care of it?

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5. Possible solution:

Into the Columns	Left to Divide
1 1 1 30 30 30	3 0 90 3

$93 \div 3 = \underline{31}$

6. Possible solution:

Into the Columns	Left to Divide
5 5 5 5 5 10 10 10 10 10	25 0 50 25

$75 \div 5 = \underline{15}$

7. Possible solution:

Into the Columns	Left to Divide
4 4 4 4 4 4 4 4 10 10 10 10 10 10 10 10	32 3 80 35

$115 \div 8 = \underline{14} \text{ R } \underline{3}$

3 chocolates left over

8. Possible solution:

Into the Columns	Left to Divide
3 3 3 3 40 40 40 40 100 100 100 100	12 3 160 15 400 175

$575 \div 4 = \underline{143} \text{ R } \underline{3}$

9. A. Possible solution:

\$128

Into the Columns	Left to Divide
8 8 8 8 8 20 20 20 20 20 100 100 100 100 100	40 3 100 43 500 143

$643 \div 5 = \underline{128} \text{ R } \underline{3}$

B. There will be \$3 left over.

Possible response: \$3 divided 5 ways is 60¢, so each family can get \$128.60.

10. $902 \div 7 = 128 \text{ R}6$

Possible solution:

							Into the Columns	Left to Divide
8	8	8	8	8	8	8	56	6
20	20	20	20	20	20	20	140	62
100	100	100	100	100	100	100	700	202

11. Possible response: $\$1446 \div 12 = \120.50

														Into the Columns	Left to Divide
50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	50¢	6	0
\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	240	60
\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	1200	246

Students may show the answer as $\$120 \text{ R}6$.

12. **A.** 3 squares because $3 \times 8 = 24$
B. 10 squares because $8 \times 10 = 80$
C. 50 squares
D. Possible solution:

	20	20	10	
8	$8 \times 20 = 160$	$8 \times 20 = 160$	$8 \times 10 = 80$	

	400	
	- 160	left to divide
	240	
	- 160	left to divide
	80	
	- 80	
	0	

$400 \div 8 = \underline{\quad 50 \quad}$

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●10. $902 \div 7 = \underline{\hspace{2cm}}$

●11. The high school football coach spent \$1446 on 12 new uniforms. What was the price of one uniform?

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★12. The students in Mrs. Dewey's class want to create a handprint mural during the school fair. Eight handprint squares fit along the width of the paper.

A. How many squares need to fit along the length of the paper if 24 total squares are to fit on the mural? Explain your thinking.

B. How many squares need to fit along the length of the paper if 80 total squares are to fit on the mural? Explain your thinking.

C. How many squares need to fit along the length of the paper if 400 total squares are to fit on the mural?

D. Jerome started by using the diagram below. Help him finish.

	20	
8	$8 \times 20 = 160$	

	400	
	- 160	left to divide
	240	

$400 \div 8 = \underline{\hspace{2cm}}$

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●13. Professor Peabody has enough grass seed to cover 300 square feet. He wants to plant grass in the space between the sidewalk and the street. If the space is 9 feet wide, how far along the sidewalk can Professor Peabody plant grass seed?

Number sentence _____

●14. Use the rectangle model to solve $855 \div 7$.

Number sentence _____

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Dividing By Multiples of 10

✓ Self-Check: Questions 15-16

15. Compute the missing quantities.

A. $2 \times 30 =$ _____ B. $400 \times 50 =$ _____
 $30 \times 2 =$ _____ $50 \times 400 =$ _____
 $60 \div 2 =$ _____ $20,000 \div 400 =$ _____
 $60 \div 30 =$ _____ $20,000 \div 50 =$ _____

16. Use mental math to solve the division problems.

A. $490 \div 70 =$ _____ B. $40,000 \div 80 =$ _____

Use the Self-Check questions and the menu to choose practice for dividing numbers that are multiple of tens.

Can I Do This?	Working On It! I could use some extra help.	Getting It! I just need some more practice.	Got It! I'm ready for a challenge.
Divide with numbers that are multiples of 10.	*Questions 17-19	•Questions 18-20	■ Questions 20-21

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13.

	30	3	
9	$9 \times 30 = 270$ sq ft	$9 \times 3 = 27$ sq ft	

$300 \div 9 = 33$ sq ft R3 sq ft

$$\begin{array}{r} 300 \\ - 270 \\ \hline 30 \\ - 27 \\ \hline 3 \end{array}$$

14.

	100 ft	20 ft	2 ft	
7	$7 \times 100 = 700$ sq ft	$7 \times 20 = 140$ sq ft	$7 \times 2 = 14$ sq ft	

$855 \div 7 = 122$ R1

$$\begin{array}{r} 855 \\ - 700 \\ \hline 155 \\ - 140 \\ \hline 15 \\ - 14 \\ \hline 1 \end{array}$$

15. A. 60 B. 20,000
 60 20,000
 30 50
 2 400

16. A. 7 B. 500

17. A. 600 B. 6000
 600 6000
 300 3000
 2 2

- C. 600 D. 6000
 600 6000
 30 300
 20 20

18. A. 100 B. 1000
 100 1000
 50 500
 2 2

- C. 1000 D. 10,000
 1000 10,000
 50 500
 20 20

E. Possible response: A multiplication fact can be written as a division fact by taking the product and dividing it by one of the factors to give the other factor.

Name _____ Date _____

Complete the fact families in Questions 17 and 18.

★17. A. $2 \times 300 =$ _____ B. $2 \times 3000 =$ _____
 $300 \times 2 =$ _____ $3000 \times 2 =$ _____
 $600 \div 2 =$ _____ $6000 \div 2 =$ _____
 $600 \div 300 =$ _____ $6000 \div 3000 =$ _____

C. $20 \times 30 =$ _____ D. $20 \times 300 =$ _____
 $30 \times 20 =$ _____ $300 \times 20 =$ _____
 $600 \div 20 =$ _____ $6000 \div 20 =$ _____
 $600 \div 30 =$ _____ $6000 \div 300 =$ _____

★18. A. $2 \times 50 =$ _____ B. $2 \times 500 =$ _____
 $50 \times 2 =$ _____ $500 \times 2 =$ _____
 $100 \div 2 =$ _____ $1000 \div 2 =$ _____
 $100 \div 50 =$ _____ $1000 \div 500 =$ _____

C. $20 \times 50 =$ _____ D. $20 \times 500 =$ _____
 $50 \times 20 =$ _____ $500 \times 20 =$ _____
 $1000 \div 20 =$ _____ $10,000 \div 20 =$ _____
 $1000 \div 50 =$ _____ $10,000 \div 500 =$ _____

E. Look back at the fact families in Questions 17 and 18. How do the multiplication facts help you solve the division facts?

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★19. Use John's thinking to fill in the boxes.

$800 \div 20 = ?$
I know $20 \times 40 = 800$.
So, $800 \div 20 = 40$.


$800 \div 40 = ?$
I know $40 \times \square = 800$.
So, $800 \div 40 = \square$.

$8000 \div 200 = ?$
I know $200 \times \square = 8000$.
So, $8000 \div 200 = \square$.

$800 \div 400 = ?$
I know $400 \times \square = 800$.
So, $800 \div 400 = \square$.

●20. Grace said, "When I divide problems like $1800 \div 30$, I think about a multiplication sentence. I think:

$30 \times ? = 1800$
 $30 \times 60 = 1800$
 so, $1800 \div 30 = 60$."



Write a multiplication sentence that can help you solve each division problem.

Follow the example: $1800 \div 600 = ?$

$$\begin{array}{r} 600 \times 3 = 1800 \\ 1800 \div 600 = 3 \end{array}$$

A. $1200 \div 40 = ?$ B. $1200 \div 400 = ?$
 $40 \times \square = 1200$ _____

C. $350 \div 70 = ?$ D. $3500 \div 70 = ?$
 _____ _____

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19.

$800 \div 40 = ?$
I know $40 \times \square = 800$.
So, $800 \div 40 = \square$.

$8000 \div 200 = ?$
I know $200 \times \square = 8000$.
So, $8000 \div 200 = \square$.

$800 \div 400 = ?$
I know $400 \times \square = 800$.
So, $800 \div 400 = \square$.

20. A. $40 \times 30 = 1200$ B. $400 \times 3 = 1200$
 $1200 \div 40 = 30$ $1200 \div 400 = 3$
- C. $70 \times 5 = 350$ D. $70 \times 50 = 3500$
 $350 \div 70 = 5$ $3500 \div 70 = 50$
- E. $60 \times 50 = 3000$ F. $600 \times 50 = 30,000$
 $3000 \div 60 = 50$ $30,000 \div 600 = 50$
- G. $80 \times 8 = 640$ H. $80 \times 80 = 6400$
 $640 \div 80 = 8$ $6400 \div 80 = 80$
21. A. 8 R8 B. 70 R2
- C. Possible response: I know $4900 \div 70 = 70$, and the extra 2 is a remainder.
22. A. $7 \times 63 = 441$ B. $380 = 3 \times 126 + 2$

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E. $3000 \div 60 = ?$ F. $30,000 \div 600 = ?$

G. $640 \div 80 = ?$ H. $6400 \div 80 = ?$

■21. Use mental math to solve the division problems.

A. $648 \div 80 = ?$ B. $4902 \div 70 = ?$

C. Explain your mental math strategy for Question 21B.

Using Multiplication to Divide

✓ **Self-Check: Questions 22-23**

22. Fill in the blanks below to show multiplication number sentences for each of the division sentences.

A. $441 \div 7 = 63$
 _____ \times _____ = _____

B. $3 \overline{)380}$
 _____ = _____ \times _____ + _____

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23. Solve the division problems using the given multiplication number sentences.

A. Solve: $5 \overline{)380}$ **B. Solve:** $736 \div 8$
 Using: $5 \times 7 = 35$ Using: $8 \times 9 = 72$ $8 \times 100 = 800$
 $5 \times 67 = 335$ $8 \times 90 = 720$ $8 \times 8 = 64$
 $5 \times 6 = 30$ $8 \times 2 = 16$

Use the Self-Check questions to choose practice with using multiplication to divide.

Can I Do This?	Working On It!	Getting It!	Got It!
	 I could use some extra help.	 I just need some more practice.	 I'm ready for a challenge.
Write a division number sentence as a multiplication number sentence.	*Question 24	●Question 25	■Questions 25-26
Use multiplication facts to help me divide.	*Questions 27-28	●Questions 27-29	■Questions 27, 29-30

★24. For each division number sentence, fill in the blanks to complete the related multiplication number sentence.

A. $9 \overline{)36}$ B. $185 \div 5 = 37$
 $9 \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} = 37 \times \underline{\quad}$
 C. $368 \div 8 = 46$ D. $370 \div 8 = 46 \text{ R}2$
 $\underline{\quad} \times \underline{\quad} = \underline{\quad}$ $\underline{\quad} = 8 \times \underline{\quad} + \underline{\quad}$

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23. A. $60 + 6 + 6 + 4 = 76$

$$\begin{array}{r} 380 \\ - 300 \\ \hline 80 \\ - 30 \\ \hline 50 \\ - 30 \\ \hline 20 \end{array} \begin{array}{l} (5 \times 60) \\ (5 \times 6) \\ (5 \times 6) \\ (5 \times 2) \end{array}$$

B. $90 + 2 = 92$

$$\begin{array}{r} 736 \\ - 720 \\ \hline 16 \\ - 16 \\ \hline \end{array} \begin{array}{l} (8 \times 90) \\ (8 \times 2) \end{array}$$

24. A. $9 \times 4 = 36$

B. $185 = 37 \times 5$

C. $8 \times 46 = 368$

D. $370 = 8 \times 46 + 2$

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●25. For each division number sentence, write the related multiplication number sentence.

A. $260 \div 4 = 65$
 $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

B. $6 \overline{)685} \text{ R}1$
 $\underline{\quad} = \underline{\quad} \times \underline{\quad} + \underline{\quad}$

C. $260 \div 4 = 65$

D. $125 \overline{)780} \text{ R}30$

■26. Write each number sentence below as a division number sentence.

A. $833 = 6 \times 138 + 5$ B. $465 = 9 \times 51 + 6$

C. Can you write a different division number sentence for Question 26B?

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25. A. $4 \times 65 = 260$

B. $685 = 6 \times 114 + 1$

C. $4 \times 65 = 260$

D. $6 \times 125 + 30 = 780$

26. A. $833 \div 6 = 138 \text{ R}5$ or
 $833 \div 138 = 6 \text{ R}5$

B. $465 \div 9 = 51 \text{ R}6$ or
 $465 \div 51 = 6 \text{ R}6$

C. See 26B.

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27. A. Possible response: No, $300 \div 5 = 60$, so $285 \div 5$ will be smaller than 60, so 85 is too large.

B. She should have added $50 + 7$ instead of $50 + 35$.

C. 57

28. A. $30 + 1 = 31$

$$\begin{array}{r} 186 \\ - 180 \quad (30 \times 6) \\ \hline 6 \\ - 6 \quad (1 \times 6) \\ \hline 0 \end{array}$$

B. $70 + 3 = 73$

$$\begin{array}{r} 292 \\ - 280 \quad (4 \times 70) \\ \hline 12 \\ - 12 \quad (4 \times 3) \\ \hline 0 \end{array}$$

29. A.

$$\begin{array}{r} 684 \\ - 630 \quad (9 \times 70) \\ \hline 54 \\ - 54 \quad (9 \times 6) \\ \hline 0 \end{array}$$

$70 + 6 = 76$

B.

$$\begin{array}{r} 896 \\ - 800 \quad (100 \times 8) \\ \hline 96 \\ - 80 \quad (10 \times 8) \\ \hline 16 \\ - 16 \quad (2 \times 8) \\ \hline 0 \end{array}$$

$100 + 10 + 2 = 112$

30. A. Possible response:
 $500 \div 5 = 100$
 235 more to divide
 $200 \div 5 = 40$
 35 more to divide
 $35 \div 5 = 7$
 $100 + 40 + 7 = 147$

B. $3200 \div 8 = 400$
 26 more to divide
 $26 \div 8 = 3 \text{ R}2$
 The answer is $403 \text{ R}2$


Name _____ Date _____

★●27. Mrs. Dewey wrote this problem on the board.

Solve: $285 \div 5$
 Using: $5 \times 5 = 25$
 $5 \times 50 = 250$
 $5 \times 7 = 35$

Irma solved the problem this way:

"First I wrote $285 \div 5$ as a multiplication sentence.
 $5 \times ? = 285$



I know $5 \times 50 = 250$. That leaves 35 left to divide. I can use $5 \times 7 = 35$. Then I'll have none left over. So my answer is $50 + 35 = 85$."

A. Is Irma's answer reasonable? Explain your thinking.

B. Where did Irma make a mistake?

C. What should the answer be?

★●28. Solve the division problems using the given multiplication number sentences.

A. Solve: $186 \div 6$
 Using: $1 \times 6 = 6$
 $3 \times 6 = 18$
 $30 \times 6 = 180$

B. Solve: $4 \overline{)292}$
 Using: $4 \times 7 = 28$
 $4 \times 70 = 280$
 $4 \times 3 = 12$

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●29. Solve the division problems using the given number sentences. Circle the quotient.

A. Solve: $9 \overline{)684}$
 Using: $9 \times 7 = 63$
 $9 \times 70 = 630$
 $9 \times 8 = 72$
 $9 \times 80 = 720$
 $9 \times 4 = 36$
 $9 \times 6 = 54$

B. Solve: $896 \div 8$
 Using: $1 \times 8 = 8$
 $10 \times 8 = 80$
 $100 \times 8 = 800$
 $2 \times 8 = 16$

●30. Use multiplication and division fact families to solve the division problems. Show the number sentences you used and explain your reasoning. Circle the quotient.

A. $735 \div 5$

B. $8 \overline{)3226}$

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