Name Answer Key

1

Mental Math!

a. Two adults and two children go to the movies. The tickets are $3.50 for adults and half price for children. What is the total cost?

b. What would the cost be if the prices were $7.00 for adults and half price for children?

ANSWER: **a.** $10.50; **b.** $21.00

COMMENTS & EXTENSIONS: One tactic in Part **a** is to count two children as one adult rather than deal with two individual prices of $1.75. What tactics do students invent to figure out these answers? Do they see that the answer to Part **b** is simply twice that of Part **a**?

What is the cost for your family to go to the movies if the prices remain the same as in Part **a**? What is the cost for your family to go to the movies at a theater near you?

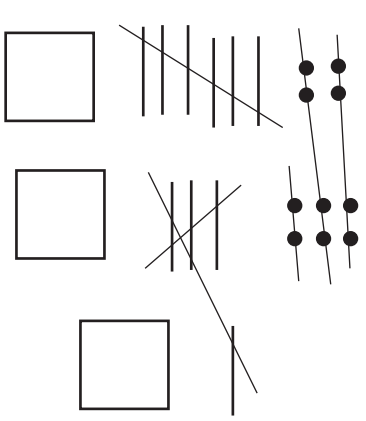
Name **Answer Key**

Try This

Marty has 1.64 meters of blue string and 1.36 meters of red string.
How many meters of string does he have in all? How much longer is the blue string?

- Use Base Ten Blocks.
- Show how you model and solve the problem.

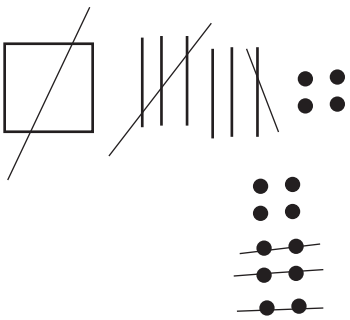
Think: Add 1.64 + 1.36



$$\begin{array}{r} {\scriptstyle 1\,1} \\ 1.64 \\ +\ 1.36 \\ \hline 3.00 \end{array}$$

Marty has 3.00 meters of string.

Think: Subtract 1.64 – 1.36



$$\begin{array}{r} {\scriptstyle 5\,14} \\ 1.6\cancel{4} \\ -\ 1.36 \\ \hline 0.28 \end{array}$$

The blue string is 0.28 meter longer.

1. Gary was playing his favorite math video game. In the first round he scored 2.12 points, and in the second round he scored 2.03 points.

How many points did Gary score in all? 4.15

How many more points did he score in the first round than he did in the second round? 0.09

Models will vary. Check student's work.

continued on the next page

Name Answer Key

2. Jun has 3.19 liters of blue liquid and 2.03 liters of green liquid.

How many liters of liquid does Jun have in all? 5.22

Compared with the green liquid, how many more liters of blue liquid are there?

1.16

Models will vary. Check student's work.

3. A handyman has a 1.4-meter length of copper wire and a 2.35-meter length of steel wire.

How many meters is the wire combined? 3.75

How many meters less is the length of copper wire? 0.95

Models will vary. Check student's work.

Add or subtract.

4.
$$\begin{array}{r} 8.25 \\ +\ 3.27 \\ \hline 11.52 \end{array}$$

5.
$$\begin{array}{r} 12.93 \\ +\ 33.1 \\ \hline 46.03 \end{array}$$

6.
$$\begin{array}{r} 0.77 \\ +\ 9.33 \\ \hline 10.10 \end{array}$$

7.
$$\begin{array}{r} 15.23 \\ -\ 9.12 \\ \hline 6.11 \end{array}$$

8.
$$\begin{array}{r} 5.44 \\ +\ 4.8 \\ \hline 10.24 \end{array}$$

9.
$$\begin{array}{r} 13.3 \\ -\ 11.95 \\ \hline 1.35 \end{array}$$

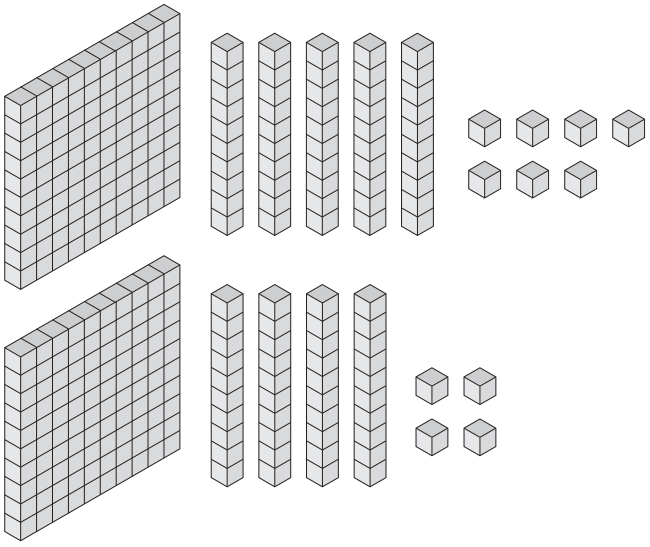
Name **Answer Key**

Use Base Ten Blocks to build the model. Use the model to complete the problem.

1. Marcel has $1.57. Jordan has $1.44.

How much do Marcel and Jordan have combined?

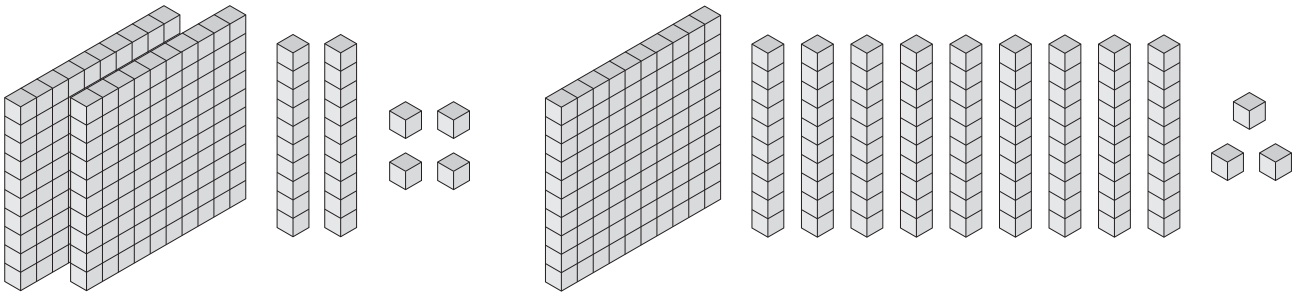
$3.01



2. Maxine has 2.24 meters of ribbon. Mandy has 1.93 meters of ribbon.

How much more ribbon does Maxine have?

0.31 meter



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Name Answer Key

Use Base Ten Blocks. Sketch a model, and use it to complete the problem.

3. Cullen played two rounds of a math video game. He scored 4.06 points in Round 1 and 3.49 points in Round 2. How many points did he score in all?

7.55

Models will vary. Check student's work.

4. Darlene has a block of copper that weighs 3.9 kilograms. She has a block of aluminum that weighs 2.65 kilograms. What is the difference between the weights of the blocks?

1.25 kilograms

Models will vary. Check student's work.

Add or subtract.

5.
$$\begin{array}{r} 7.25 \\ +\ 2.27 \\ \hline 9.52 \end{array}$$

6.
$$\begin{array}{r} 1.9 \\ +\ 10.15 \\ \hline 12.05 \end{array}$$

7.
$$\begin{array}{r} 5.57 \\ +\ 3.5 \\ \hline 9.07 \end{array}$$

8.
$$\begin{array}{r} 9.23 \\ -\ 7.15 \\ \hline 2.08 \end{array}$$

9.
$$\begin{array}{r} 16.34 \\ +\ 9.6 \\ \hline 25.94 \end{array}$$

10.
$$\begin{array}{r} 22.91 \\ -\ 7.44 \\ \hline 15.47 \end{array}$$

Name Answer Key

2

Suppose you know that 14 × 10 is 140.

a. Tell how you can figure out what 14 × 11 is.

b. Tell how you can figure out what 14 × 9 is.

ANSWER: **a.** 154, or (14 × 10) + 14; **b.** 126, or (14 × 10) – 14

COMMENTS & EXTENSIONS: It is important, especially when doing higher level math and when estimating, to be able to find shortcuts.

Mental arithmetic:

a. 99 × 32 =

b. 9 × 14 =

c. 16 × 101 =

d. 15 × 102 =

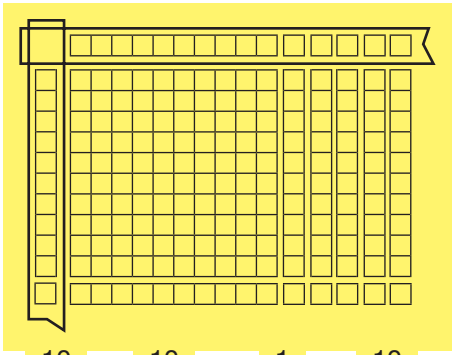
Tell how you got each answer.

Name **Answer Key**

Try This

- Model problem 1 using Base Ten Blocks and a Factor Track. Sketch your model. Label the area model, and complete the equation.
- In problems 2–3, sketch an area model and find the product.
- In problems 4–7, find the product.

1. 11 × 15 = (10 + 1) × (10 + 5)



	10	5
10	100	50
1	10	5

= (10 × 10) + (1 × 10) + (10 × 5) + (1 × 5)

= 100 + 10 + 50 + 5 = 165

2. 25 × 13

15
60
50
200
325

	20	5
10	200	50
3	60	15

3. 125 × 23

15
60
300
100
400
2000
2875

	100	20	5
20	2000	400	100
3	300	60	15

4. 26 × 33

18
60
180
600
858

5. 134 × 24

16
120
400
80
600
2000
3216

6. 225 × 32

10
40
400
150
600
6000
7200

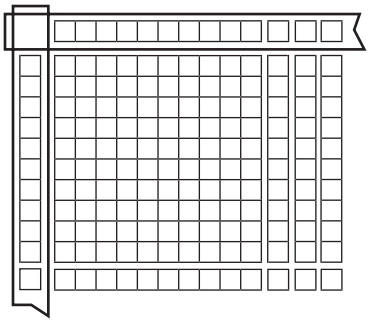
7. 316 × 22

12
20
600
120
200
6000
6952

Name **Answer Key**

Use a Factor Track and Base Ten Blocks to build the model.
Complete the number sentence.

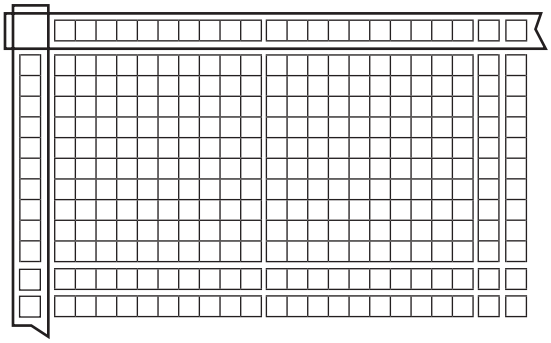
1. 11 × 13 = (10 + 1) × (10 + 3)



= (10 × 10) + (1 × 10) + (10 × 3) + (1 × 3)

= 100 + 10 + 30 + 3 = 143

2. 12 × 22 = (10 + 2) × (20 + 2)



= (10 × 20) + (2 × 20)

+ (10 × 2) + (2 × 2)

= 200 + 40 + 20 + 4 = 264

Complete the area model for the problem. Find the product.

3.

26
× 13
18
60
60
200
338

	20	6
10	200	60
3	60	18

4.

144
× 24
16
160
400
80
800
2000
3456

	100	40	4
20	2000	800	80
4	400	160	16

Find the product.

5.

46
× 34
24
160
180
1200
1564

6.

127
× 14
28
80
400
70
200
1000
1778

7.

225
× 31
5
20
200
150
600
6000
6975

8.

333
× 26
18
180
1800
60
600
6000
8658

Name Answer Key

3

Mental Math!

1. Which is smallest?

a. 1,639 ÷ 27 **b.** 1,600 ÷ 27 **c.** 1,550 ÷ 27

2. Which is biggest?

a. 400 ÷ 23 **b.** 405 ÷ 23 **c.** 397 ÷ 23

3. Which is biggest?

a. 400 ÷ 24 **b.** 400 ÷ 25 **c.** 400 ÷ 29

ANSWER: 1. c. 1,550 ÷ 27; **2. b.** 405 ÷ 23; **3. a.** 400 ÷ 24

COMMENTS & EXTENSIONS: One tactic of problem solving is to solve a similar, but simpler, problem. For instance, instead of doing all the problems in Part **a**, do similar problems. Which is smaller, 8 ÷ 2, 6 ÷ 2, or 4 ÷ 2?

Which is largest?

a. $25 \times \frac{1}{6}$ **b.** $25 \times \frac{1}{5}$ **c.** $25 \times \frac{1}{4}$

Name **Answer Key**

Try This

There are 14 days in a fortnight. How many fortnights make 308 days?

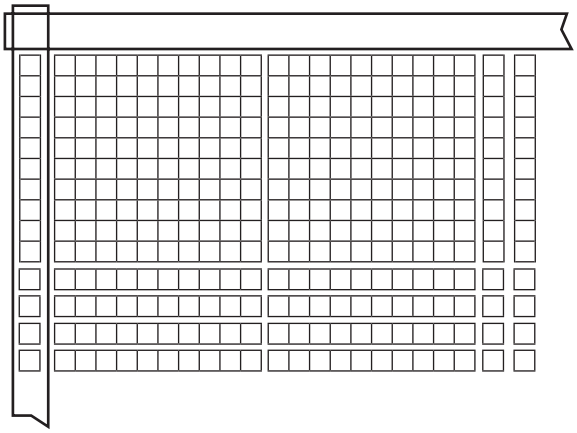
- Use a Factor Track and Base Ten Blocks to model the problem.
- Sketch your model.
- Use your model to find the answer.

Think: Find 308 ÷ 14.

14 is a rod and 4 units.

308 is 3 flats, 8 units.

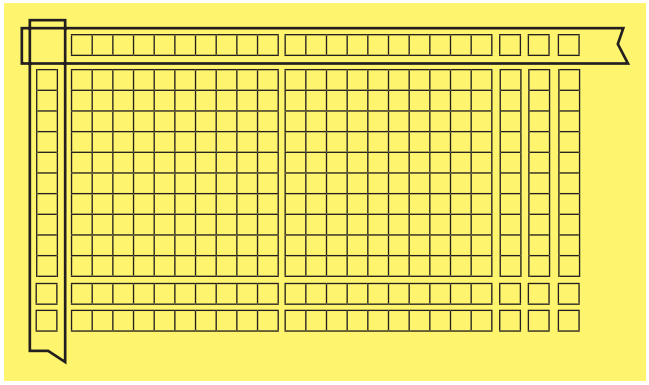
You need to trade 1 flat for 10 rods to make the rectangle.



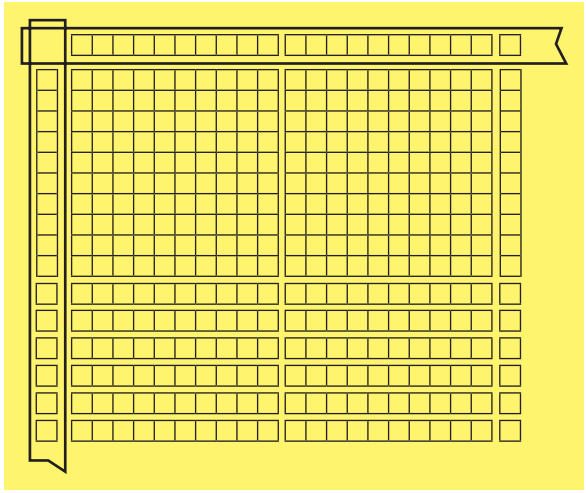
The missing side is 2 rods and 2 units, or 22.

308 days are 22 fortnights.

1. 276 ÷ 12 = 23



2. 336 ÷ 21 = 16



Sketch an area model to solve the problem. Start by modeling the problem with Base Ten Blocks if it helps. You can build a rectangle without the Factor Track.

3. 558 ÷ 31 = 18

	30	1
10	300	10
8	240	8

4. 952 ÷ 34 = 28

	30	4
20	600	80
8	240	32

continued on the next page

Name **Answer Key**

Divide. Show your work.

5. 1,632 ÷ 32 = 51

```
      1
     50 ] 51
32 | 1632
   1600
     32
     32
      0
```

6. 1,386 ÷ 42 = 33

```
      3
     30 ] 33
42 | 1386
   1260
    126
    126
      0
```

7. 4,431 ÷ 21 = 211

```
      1
     10 ] 211
    200
21 | 4431
   4200
    231
    210
     21
     21
      0
```

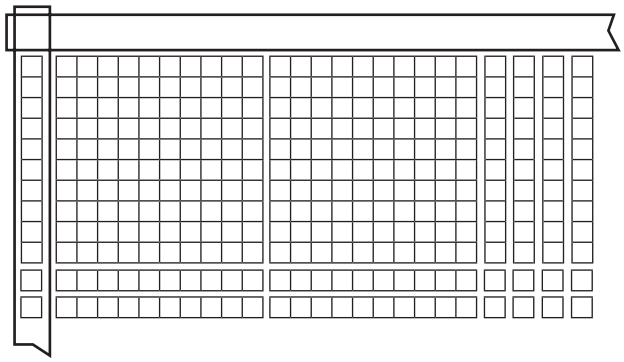
8. 3,550 ÷ 25 = 142

```
      2
     40 ] 142
    100
25 | 3550
   2500
   1050
   1000
     50
     50
      0
```

Name **Answer Key**

Use a Factor Track and Base Ten Blocks to build the model. Use the model to solve the problem.

1. There are 12 in a dozen. How many dozen do 288 make? 24

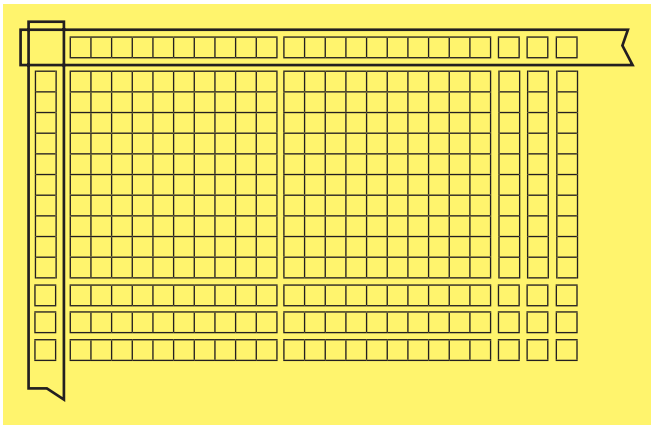


10	200	40
2	40	8

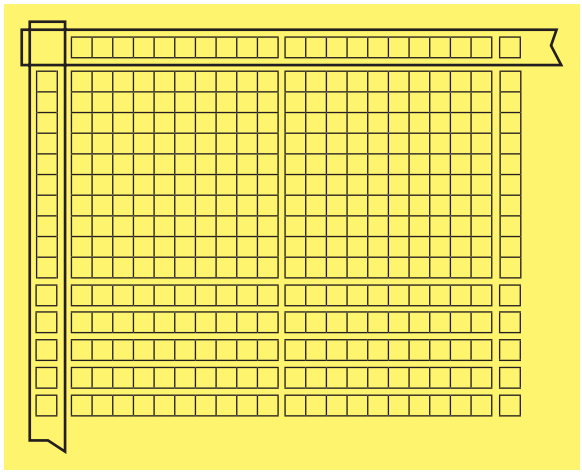
12	288
	240
	48
	48
	0

Use a Factor Track and Base Ten Blocks to model the problem. Sketch your model and use it to solve the problem.

2. 299 ÷ 13 = 23



3. 315 ÷ 21 = 15



Sketch an area model to solve the problem. Start by modeling the problem with Base Ten Blocks if it helps. You can build a rectangle without the Factor Track.

4. 455 ÷ 13 = 35

	30	5
10	300	50
3	90	15

5. 837 ÷ 27 = 31

	30	1
20	600	20
7	210	7

continued on the next page

Name **Answer Key**

Divide. Show your work.

6. 1,749 ÷ 33 = 53

```
      3
     50 ] 53
33 | 1749
   1650
     99
     99
      0
```

7. 2,091 ÷ 51 = 41

```
      1
     40 ] 41
51 | 2091
   2040
     51
     51
      0
```

8. 3,920 ÷ 35 = 112

```
      2
     10 ] 112
    100
35 | 3920
   3500
    420
    350
     70
     70
      0
```

9. 5,352 ÷ 24 = 223

```
      3
     20 ] 223
    200
24 | 5352
   4800
    552
    480
     72
     72
      0
```

Name Answer Key

4

List 3 numbers between

a. 90 and 97.

b. 4.1 and 4.7.

c. 3.2 and 3.3.

d. one-fourth and one-half.

ANSWER: **a.** Sample: 91, 95, 96; **b.** Sample: 4.15, 4.36, 4.2; **c.** Sample: 3.21, 3.28, 3.29; **d.** Sample: $\frac{3}{8}$, $\frac{9}{20}$, $\frac{7}{15}$

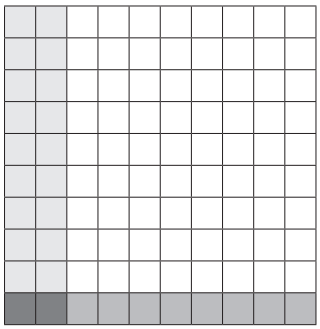
COMMENTS & EXTENSIONS: Once students have completed Part **a**, they have five numbers (including the boundaries 90 and 97). Now ask them to make a number which is between the first and the second, the second and the third, etc.

Name **Answer Key**

Try This

Gretchen had 0.2 pounds of marbles. She gave 0.1 of the marbles to her friend Emma. How many pounds of marbles did she give Emma?

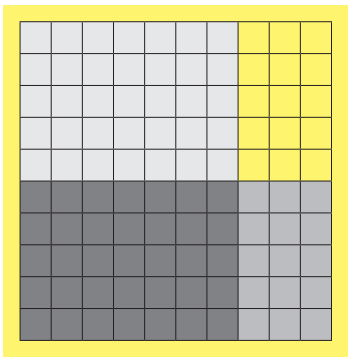
- Use Base Ten Blocks to show one factor vertically and one factor horizontally.
- Shade the grid to represent your model.
- Use your model and drawing to find the answer.
- Write an equation to express the answer.



0.2 × 0.1 = 0.02 pound

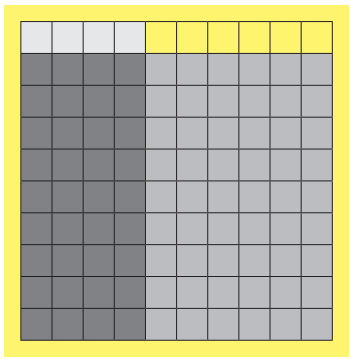
1. Jarrod started with 0.7 of a wheelbarrow of soil. He put 0.5 of the soil into the garden. How much of the wheelbarrow of soil did he put in the garden?

0.7 × 0.5 = 0.35 wheelbarrow



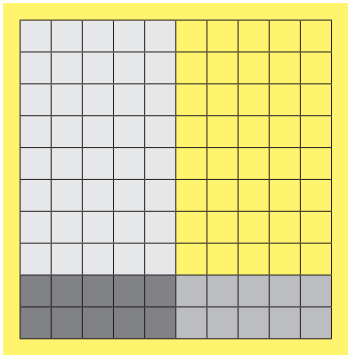
2. Harish had 0.4 of a bucket of paint. He gave 0.9 of the paint to his friend Aiko. How much of the bucket did he give to Aiko?

0.4 × 0.9 = 0.36 bucket



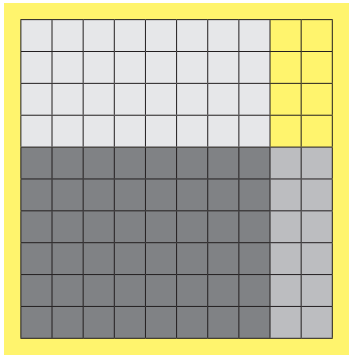
3. Abby had a pitcher with 0.5 of a liter of iced tea. If Abby drank 0.20 of the iced tea, how much of a liter did she drink?

0.5 × 0.2 = 0.10 liter



4. Coach Paul brought 0.8 of a gallon of water for his team. His team drank 0.6 of the water. How much of a gallon of water did the team drink?

0.8 × 0.6 = 0.48 gallon



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Name **Answer Key**

Answer the question.

5. Review problems 1–4. Compare your equations with the following equations.

$7 \times 5 = 35$

$4 \times 9 = 36$

$5 \times 2 = 10$

$8 \times 6 = 48$

Describe your findings.

The digits are the same in both. The difference is the decimal points. Compared with the whole-number products, the products in problems 1–4 have the decimal point moved 2 places to the left, which is the sum of how many places left the decimal point is moved in each factor.

Use your findings in problem 5 to solve the problem.

6. Liz is making an art project that calls for 0.8 meter of ribbon. The ribbon costs $0.85 a meter. How much will Liz have to pay for the amount of ribbon she needs?

$0.680

7. Carlos had a 0.25 kg bag of peanuts. He and his two brothers ate 0.4 of the bag. How much of a kilogram of peanuts did they eat?

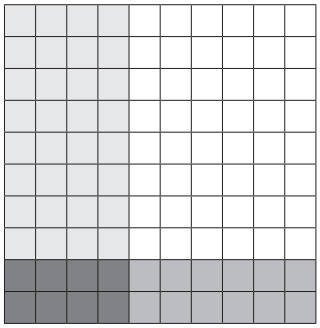
0.100 kg

Name **Answer Key**

Use Base Ten Blocks to build the area model. Write an equation to show the answer to the problem.

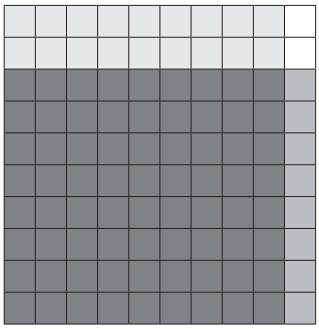
1. Santiago had 0.4 of a container of paper clips. He used 0.2 of the paper clips. How much of the container of paper clips did he use?

$0.4 \times 0.2 = 0.08$ of a container



2. Jackie bought 0.9 of a meter of yellow ribbon. She used 0.8 of the ribbon for an art project. How much of a meter did she use?

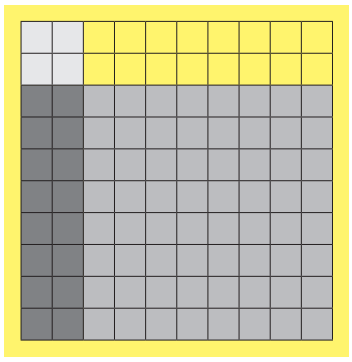
$0.9 \times 0.8 = 0.72$ meter



Shade the grid to sketch an area model for the problem. Write an equation to show the answer.

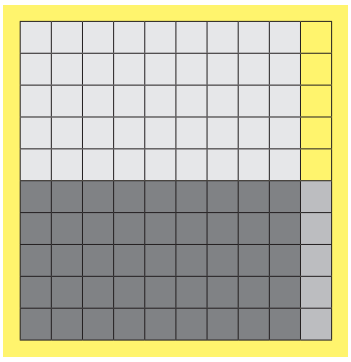
3. Ayden had 0.2 pound of grapes. He ate 0.8 of the grapes. How much of a pound of grapes did Ayden eat?

$0.2 \times 0.8 = 0.16$ pound



4. Maria brought 0.9 liter of lemonade for lunch. She drank 0.5 of the lemonade. How much of a liter did she drink?

$0.9 \times 0.5 = 0.45$ liter



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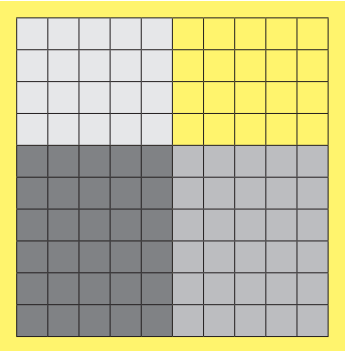
Name **Answer Key**

5. Mrs. Wilson had 0.5 pound of buttons. She used 0.6 of the buttons to teach a lesson. How much of a pound of buttons did she use for the lesson?

0.5 × 0.6 = 0.30 pound



Solve the problem.

6. Rain is falling steadily at the rate of 0.6 inch each hour. If it continues raining at that rate, how much rain will fall in 0.75 hour? Hint: (6 × 75 = 450)

0.6 × 0.75 = 0.450 inch

Name Answer Key

5

Mental Math!

a. Beans were sold 6 cans for $3 or for 52¢ each.
Which is the better buy?

b. Tomato juice was sold three cans for $1.99 or 59¢ each.
Which is the better buy?

ANSWER: **a.** 6 for $3; **b.** 59¢ each

COMMENTS & EXTENSIONS: Here is a research question for students. Is the economy-sized (or economy-packaged) version of a product always a better buy than the regular version?

Why do stores sell items in different size packages? Explain.

Name **Answer Key**

Try This

Jake has a 1.2-meter piece of dowel rod. He needs to cut the dowel into 0.3-meter pieces. How many pieces can he make?

- Model the dividend with Base Ten Blocks.
- Divide.
- Sketch your model.
- Write an equation to show the answer.

Think: Dividend is 1 flat and 2 rods. How many groups of 0.3 can I make from 1.2? Trade the flat for 10 rods. Divide the rods into groups of 0.3.

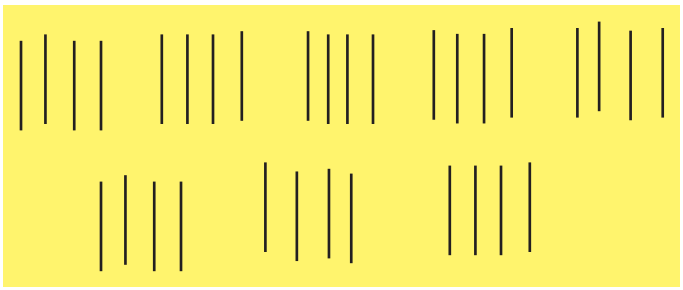
1.2 ÷ 0.3 = 4

1. If Jennifer runs 0.5 miles every morning, how many days will it take her to run 2.5 miles?

2.5 ÷ 0.5 = 5

2. Michelle has 3.2 feet of string. She needs to cut the string into pieces that are 0.4 feet long. How many pieces will she have?

3.2 ÷ 0.4 = 8



Answer the question.

3. Review problems 1–2. Compare your equations with the following equations.

25 ÷ 5 = 5

32 ÷ 4 = 8

Describe your findings, and explain them.

The quotients are the same; 25 tenths divided by 5 tenths is 5 groups of tenths, and 32 tenths divided by 4 tenths is 8 groups of tenths.

continued on the next page

Name **Answer Key**

Use your findings in problem 3 to solve the problem. Write an equation to show the answer.

4. The cheerleading squad has 4.9 meters of ribbon to make bows for the banquet. Each bow takes 0.7 meter. How many bows can the squad make?

4.9 ÷ 0.7 = 7

5. Patty is putting a fence around her vegetable garden. The fencing comes in sections that are 0.9 meter long. The perimeter of the garden is 7.2 meters. How many sections of fence does she need?

7.2 ÷ 0.9 = 8

6. Alicia wants to put square paving stones along a flower bed. The flower bed is 17.4 feet long. Each paving stone is 0.6 feet on a side. How many paving stones does Alicia need?

17.4 ÷ 0.6 = 29

7. Derrick is making costumes for the class play. Each cape takes 0.8 yards of blue cloth. Derrick has 14.4 yards of blue cloth. How many capes can he make?

14.4 ÷ 0.8 = 18

Solve.

8. 1.44 ÷ 0.12 = 12

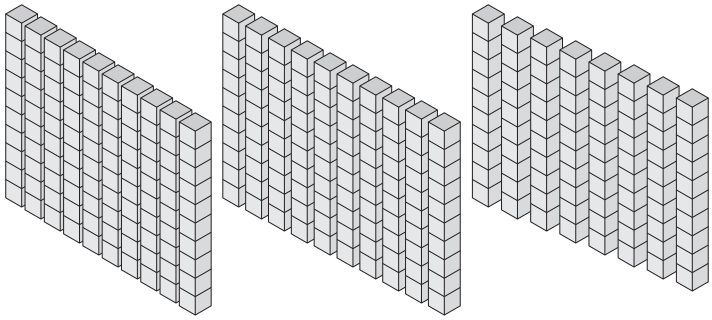
9. 1.25 ÷ 0.25 = 5

Name **Answer Key**

Use Base Ten Blocks to build the model. Use the model to solve the problem. Write an equation to show the answer.

1. Jeffrey has a 2.8-meter-long piece of wood. He needs to cut the wood into pieces that are 0.4 meter long. How many pieces can he cut?

2.8 ÷ 0.4 = 7 pieces



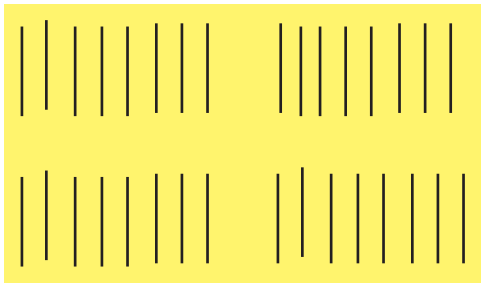
Use Base Ten Blocks to model the problem. Sketch the model. Write an equation to show the answer.

2. If Holly runs 0.5 mile every day, how many days will it take her to run 1.5 miles?

1.5 ÷ 0.5 = 3

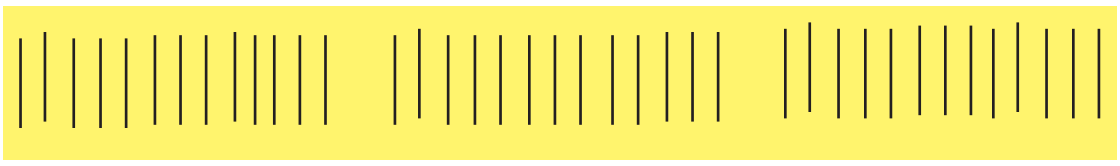
3. The decorating committee has 3.2 meters of ribbon to make bows for the banquet. Each bow takes 0.8 meter of ribbon. How many bows can the committee make?

3.2 ÷ 0.8 = 4



4. Consuela is putting a fence around a flower bed. The fencing comes in sections that are 1.3 meters long. The perimeter of the flower bed is 3.9 meters. How many sections of fence does she need?

3.9 ÷ 1.3 = 3



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Name Answer Key

Answer the question.

5. Review problems 2–4. Compare your equations with the following equations.

15 ÷ 5 = 3

32 ÷ 8 = 4

39 ÷ 13 = 3

Describe your findings, and explain them.

The quotients are the same; and, for example, 39 tenths divided by 13 tenths is 3 groups of tenths.

Use your findings in problem 5 to solve the problem. Write an equation to show the answer.

6. Michael wants to make a sidewalk between the garage and the patio. The sidewalk will be 11.5 meters long. Each section will be a square 0.5 meter on a side. How many sections long will the sidewalk be?

11.5 ÷ 0.5 = 23

7. Jamal has 3.4 liters of apple juice. If he puts 0.2 liter of juice in each glass, how many glasses can he fill?

3.4 ÷ 0.2 = 17