Name **Answer Key**

1

Erika did multiplication like this.

$$\begin{array}{r} 24 \\ \times\ 5 \\ \hline 20 \\ \hline 100 \\ \hline 120 \end{array}$$

Can you explain what she did?

Try Erika's method for these.

a. $\begin{array}{r} 41 \\ \times\ 7 \\ \hline \end{array}$ **b.** $\begin{array}{r} 23 \\ \times\ 8 \\ \hline \end{array}$ **c.** $\begin{array}{r} 19 \\ \times\ 7 \\ \hline \end{array}$

ANSWER:

a. $\begin{array}{r} 41 \\ \times\ 7 \\ \hline 7 \\ \hline 280 \\ \hline 287 \end{array}$ **b.** $\begin{array}{r} 23 \\ \times\ 8 \\ \hline 24 \\ \hline 160 \\ \hline 184 \end{array}$ **c.** $\begin{array}{r} 19 \\ \times\ 7 \\ \hline 63 \\ \hline 70 \\ \hline 133 \end{array}$

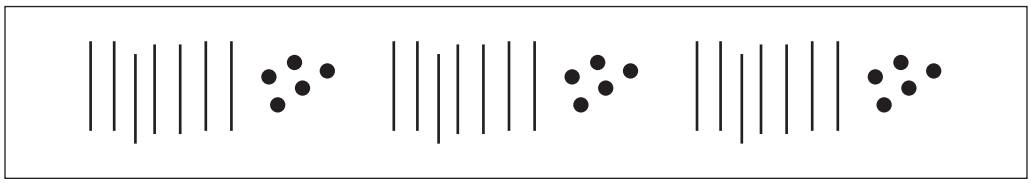
COMMENTS & EXTENSIONS: Imagine the 24 as 2 packs of ten and 4 ones. What Erika did was to collect her ones first and then her tens. This approach always works, and may fit some students' mental process better than the traditional procedure where the 0 in the ones column of 100 is omitted.

Name **Answer Key**

Try This

During summer break, Austin earned $75 a week for 3 weeks. How much money did he earn during this time?

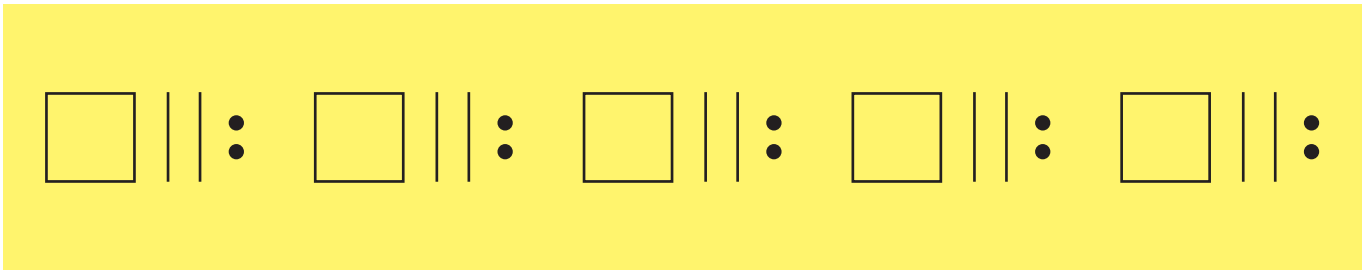
- Use Base Ten Blocks to model the problem.
- Sketch the model and use it to complete the problem.



$3 \times 75 = (3 \times 70) + (3 \times 5)$

$= 210 + 15 = 225$

1. Marta's strawberry patch has 122 strawberry plants. If she increases the number of plants to 5 times that many in the next 10 years, how many plants will she have?



$5 \times$ 122 $= (5 \times$ 100 $) + (5 \times$ 20 $) + (5 \times$ 2 $)$

$=$ 500 $+$ 100 $+$ 10 $=$ 610

Find the product. Use the distributive property. Sketch a model if you like.

2. $6 \times 414 =$ 2,400 $+$ 60 $+$ 24 $=$ 2,484

continued on the next page

Name **Answer Key**

3. $4 \times 726 =$ 2,800 + 80 + 24 = 2,904

4. $3 \times 1{,}481 =$ 3,000 + 1,200 + 240 + 3 = 4,443

5. $5 \times 2{,}241 =$ 10,000 + 1,000 + 200 + 5 = 11,205

6. $2 \times 9{,}241 =$ 18,000 + 400 + 80 + 2 = 18,482

7. $8 \times 4{,}201 =$ 32,000 + 1,600 + 8 = 33,608

Solve the problem. Show your work.

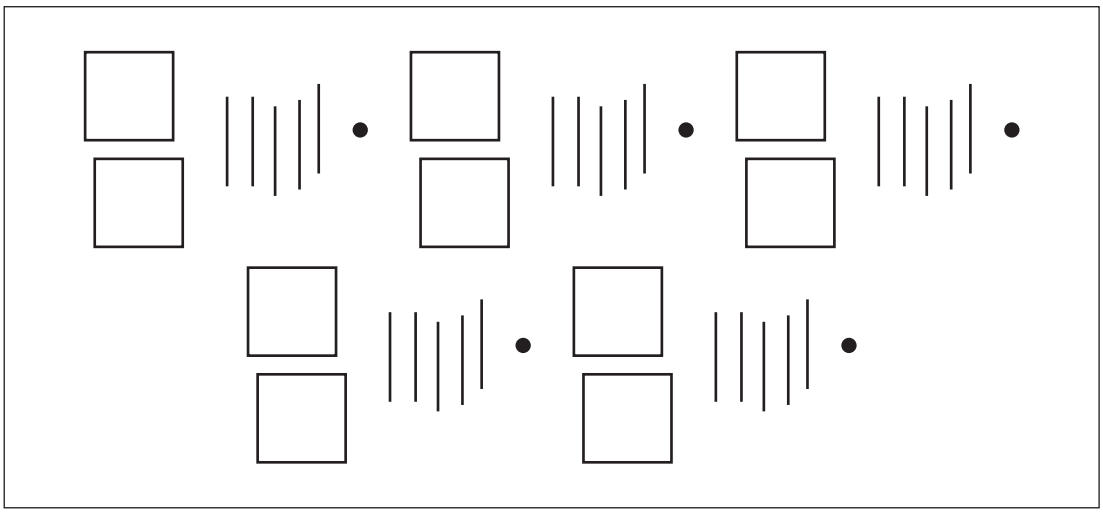
8. Thompson Brothers Wire Company uses 5 kg of copper for every large spool of wire it makes. The company just received an order for 3,025 spools of wire. How many kilograms of copper will the company need to fill the order?

$(5 \times 3{,}000) + (5 \times 20) + (5 \times 5) = 15{,}000 + 100 + 25 = 15{,}125$

Name **Answer Key**

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

1. 5 × 251

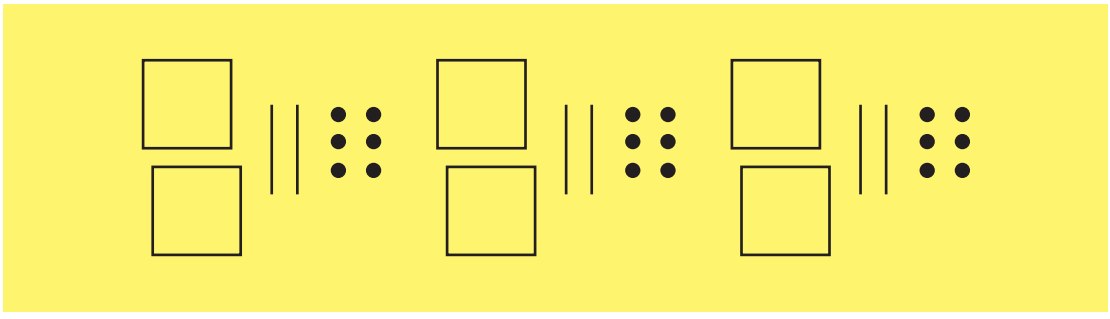


5 × 251 = (5 × 200) + (5 × 50) + (5 × 1)

= 1,000 + 250 + 5 = 1,255

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

2. 3 × 226



3 × 226 = (3 × 200) + (3 × 20) + (3 × 6)

= 600 + 60 + 18 = 678

continued on the next page

Name **Answer Key**

Find the product. Use the distributive property. Sketch a model if you like.

3. $7 \times 314 =$ 2,100 + 70 + 28 = 2,198

4. $2 \times 735 =$ 1,400 + 60 + 10 = 1,470

5. $3 \times 1{,}551 =$ 3,000 + 1,500 + 150 + 3 = 4,653

6. $4 \times 2{,}242 =$ 8,000 + 800 + 160 + 8 = 8,968

7. $5 \times 9{,}220 =$ 45,000 + 1,000 + 100 = 46,100

8. $8 \times 2{,}202 =$ 16,000 + 1,600 + 16 = 17,616

Name Answer Key

2

3 × 4 = 12

3 × 44 = 132

3 × 444 = _____

3 × 4,444 = _____

Keep going, and then write three observations.

ANSWER: 1,332; 13,332. The products all begin with 1. The products all end with 2. The number 3 repeats in the middle 1 less time than the number of 4s.

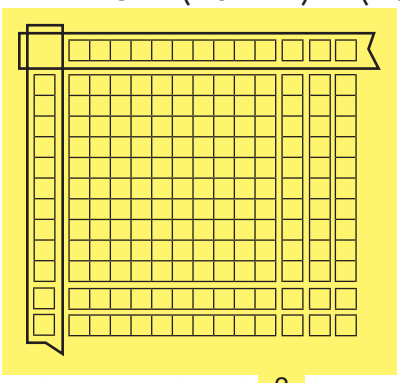
COMMENTS & EXTENSIONS: Instead of multiplying by 3, try 4. What do you find? Now try 5 and 6.

Name **Answer Key**

Try This

- Use Base Ten Blocks and a Factor Track to model each problem.
- In problems 1–2, sketch your model.
- In problems 3–4, sketch an area model.
- In each problem, complete the number sentences.

1. $12 \times 13 = (10 + 2) \times (10 + 3)$



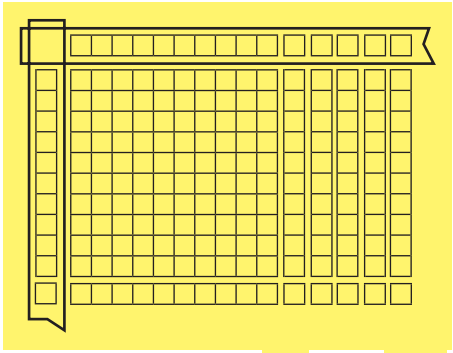
Students may use shorthand notation for flats, rods, and units

$= (10 \times 10) + (\underline{2} \times 10)$

$+ (10 \times 3) + (\underline{2} \times 3)$

$= \underline{100} + \underline{20} + \underline{30} + \underline{6} = \underline{156}$

2. $11 \times 15 = (\underline{10} + \underline{1}) \times (\underline{10} + \underline{5})$



$= (10 \times 10) + (\underline{1} \times \underline{10})$

$+ (\underline{10} \times \underline{5}) + (\underline{1} \times \underline{5})$

$= \underline{100} + \underline{10} + \underline{50} + \underline{5} = \underline{165}$

3. $13 \times 25 = (\underline{10} + \underline{3}) \times (\underline{20} + \underline{5})$

	20	5
10	200	50
3	60	15

$= (\underline{10} \times \underline{20}) + (\underline{3} \times \underline{20})$

$+ (\underline{10} \times \underline{5}) + (\underline{3} \times \underline{5})$

$= \underline{200} + \underline{60} + \underline{50} + \underline{15} = \underline{325}$

4. $24 \times 32 = (\underline{20} + \underline{4}) \times (\underline{30} + \underline{2})$

	30	2
20	600	40
4	120	8

$= (\underline{20} \times \underline{30}) + (\underline{4} \times \underline{30})$

$+ (\underline{20} \times \underline{2}) + (\underline{4} \times \underline{2})$

$= \underline{600} + \underline{120} + \underline{40} + \underline{8} = \underline{768}$

Find the product. Show your work on the back.

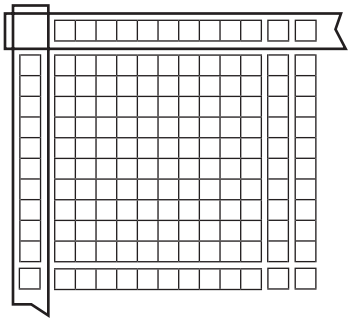
5. $12 \times 19 =$ $(10 + 2) \times (10 + 9) = (10 \times 10) + (2 \times 10) + (10 \times 9) + (2 \times 9) = 100 + 20 + 90 + 18 = 228$

6. $35 \times 22 =$ $(30 + 5) \times (20 + 2) = (30 \times 20) + (5 \times 20) + (30 \times 2) + (5 \times 2) = 600 + 100 + 60 + 10 = 770$

Name **Answer Key**

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

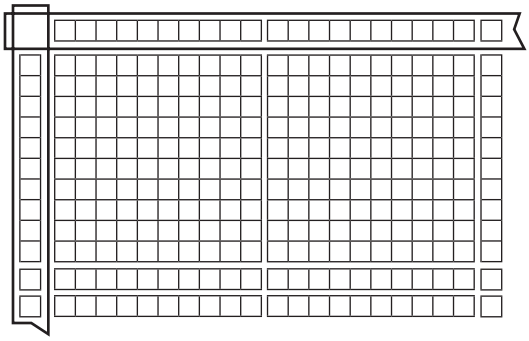
1. $11 \times 12 = (10 + 1) \times (10 + 2)$



$= (10 \times 10) + (1 \times 10) + (10 \times 2) + (1 \times 2)$

$= 100 + 10 + 20 + 2 = 132$

2. $12 \times 21 = (10 + \_2\_) \times (20 + \_1\_)$

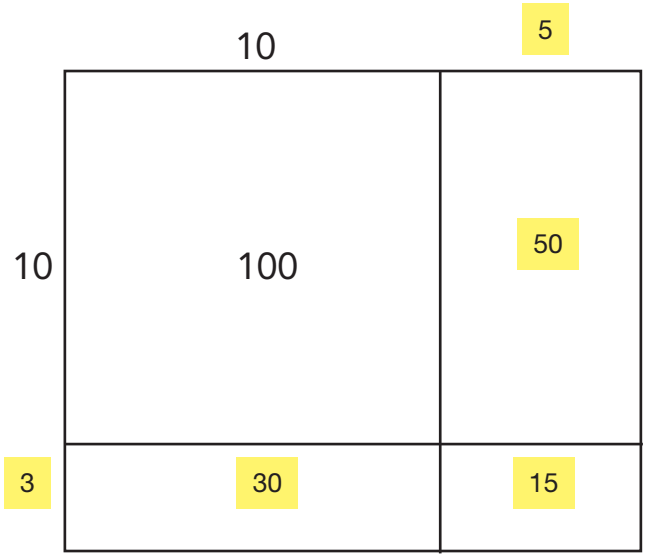


$= (10 \times 20) + (2 \times 20) + (\_10\_ \times 1) + (\_2\_ \times 1)$

$= 200 + 40 + 10 + 2 = 252$

Use a Factor Track and Base Ten Blocks to model the problem. Complete the area sketch. Complete the number sentence.

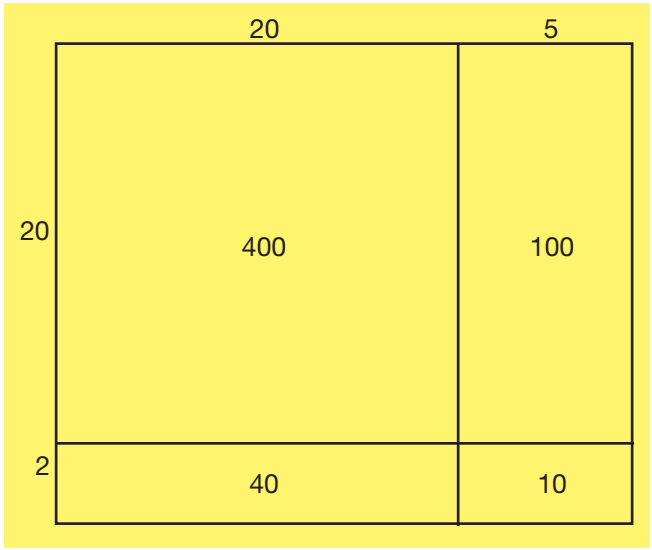
3. $13 \times 15 = (10 + \_3\_) \times (10 + \_5\_)$



$= (10 \times 10) + (\_3\_ \times 10) + (10 \times \_5\_) + (\_3\_ \times \_5\_)$

$= 100 + 30 + 50 + 15 = 195$

4. $22 \times 25 = (\_20\_ + \_2\_) \times (\_20\_ + \_5\_)$



$= (20 \times 20) + (\_2\_ \times \_20\_) + (\_20\_ \times \_5\_) + (\_2\_ \times \_5\_)$

$= 400 + 40 + 100 + 10 = 550$

Find the product. Show your work on the back.

5. $12 \times 17 =$ $(10 + 2) \times (10 + 7) = (10 \times 10) + (2 \times 10) + (10 \times 7) + (2 \times 7) = 100 + 20 + 70 + 14 = 204$

6. $15 \times 21 =$ $(10 + 5) \times (20 + 1) = (10 \times 20) + (5 \times 20) + (10 \times 1) + (5 \times 1) = 200 + 100 + 10 + 5 = 315$

Name Answer Key

3

a. Which numbers divide 24 to give a remainder of 3?

b. Which numbers divide 20 to give a remainder of 6?

c. Which numbers divide 100 to give a remainder of 1?

ANSWER: **a.** 7, 21; **b.** 7, 14; **c.** 3, 9, 11, 33, 99

COMMENTS & EXTENSIONS: What are possible remainers when you divide a number by 8?

What numbers divide 100 to give a remainder of

a. 2?

b. 3?

c. 4?

Name **Answer Key**

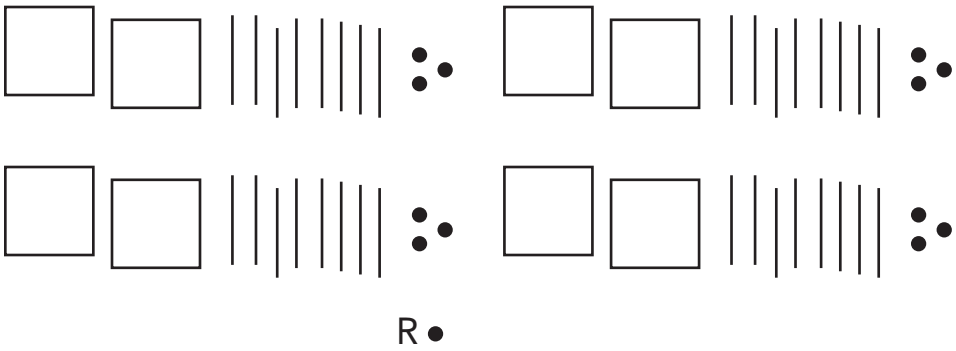
Try This

Benjamin's Best Books has 1,133 books to donate to 4 local schools. They want to donate the same number of books to each school. How many books will each school receive?

- Use Base Ten Blocks to model the problem.
- Sketch and write your answer.

Think: 1,133 ÷ 4.

Model: 1 thousand cube + 1 flat + 3 rods + 3 units, divided into 4 equal groups.



Each school will receive 283 books. There will be 1 book left over. This extra book will not be donated, because it cannot be divided up.

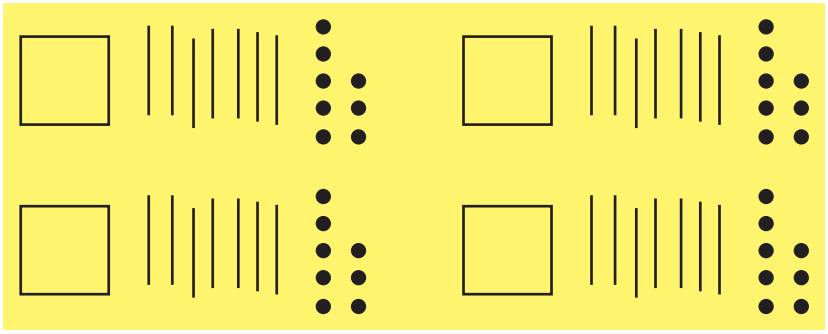
1. Gretchen had 134 wooden beads. She divided them equally into 4 bowls. How many beads are in each bowl? Explain any that are left over.

There are 33 beads in each bowl; 2 beads are left over. The 2 extra beads cannot be divided equally among 4 bowls, so they are not used.

continued on the next page

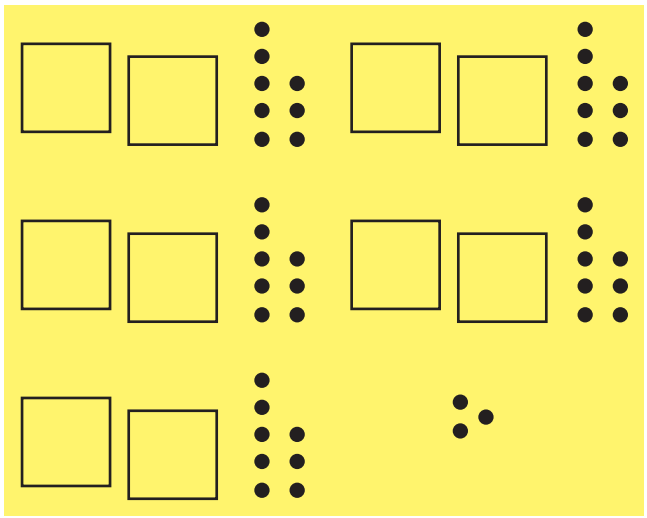
Name **Answer Key**

2. Diego made $534 this summer. He wants to put equal amounts into 3 savings accounts. How much should he deposit in each account? Explain anything that is left over.



He should deposit $178 in each account; nothing is left over.

3. Theresa brought 1,043 photographs and 5 boxes to the photography club meeting. The members need to put the same number of photos in each box. How many photos should go in each box? Explain any that are left over.



208 photos go in each box; 3 photos are left over. The 3 extra photos cannot be divided equally between 5 boxes, so they should not be included.

Solve the problem. Explain any remainders.

4. The meeting room has 134 chairs. The members want the chairs arranged in 6 equal rows. How many chairs should be in each row?

22 chairs, with 2 left over. The 2 extra chairs should not be included among the rows, because 2 chairs are not enough to divide among 6 rows.

continued on the next page

Name **Answer Key**

5. The Dress Outlet received a shipment of 448 dresses in 4 identical boxes. How many dresses were in each box?

112

6. Sparkle Pools has 1,310 square tiles. The workers need to divide the tiles into 3 equal piles. How many tiles should go in each pile?

436, with 2 left over. The 2 extra tiles should not be included in the piles, because they cannot be divided equally 3 ways.

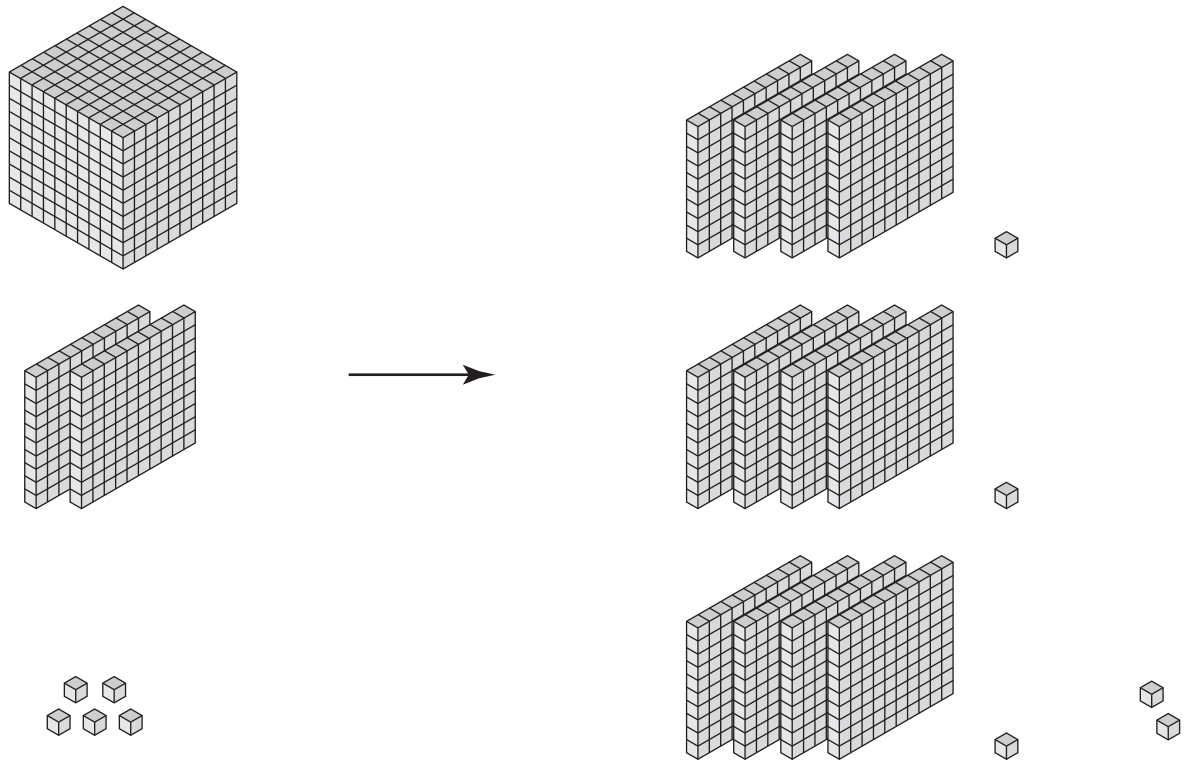
7. 2,312 ÷ 4 = 578

8. 2,334 ÷ 7 = 333 R3

Name **Answer Key**

Use Base Ten Blocks to build the model. Divide the model into rows to solve the problem. Trade for smaller blocks as needed.

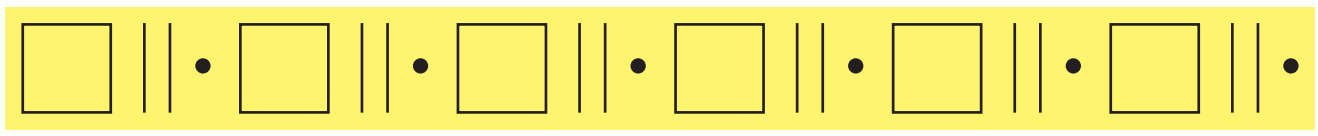
1. Michelle and her friends collected 1,205 box tops during the school year. They want to give an equal number of box tops to each of their 3 teachers. How many box tops will each teacher get? How many box tops will be left over?



Each teacher will get 401 box tops; 2 box tops will be left over. The extra box tops will not be included, because there are not enough to divide between 3 teachers.

Use Base Ten Blocks. Model the problem, and sketch your answer. Write your answer. Explain any remainders.

2. Carmen's Cookie Company wants to give 726 cookies to 6 schools. If each school gets the same number of cookies, how many cookies will each school receive?



Each school will get 121 cookies.

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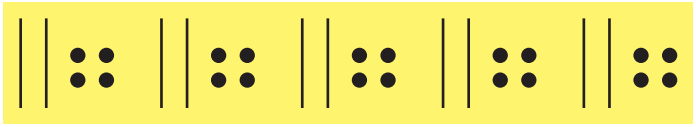
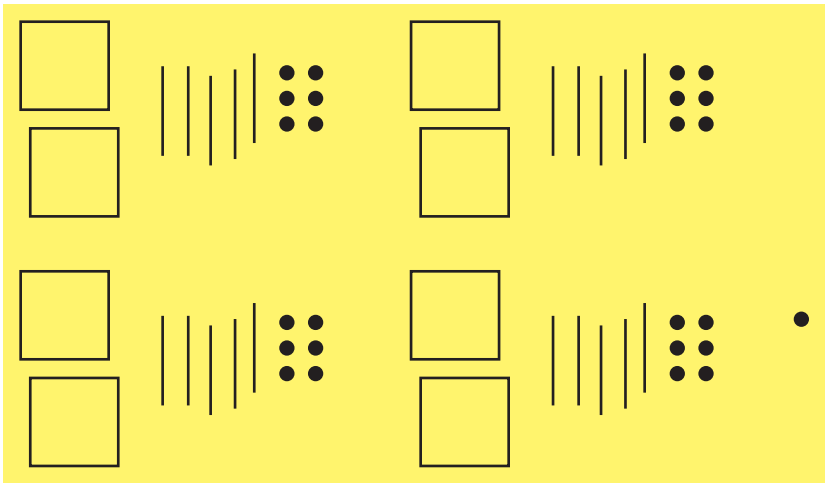
Name **Answer Key**

3. Riva's company purchased 120 baseball tickets. The company will divide them equally among 5 departments. How many tickets will each department receive?



Each department will receive 24 tickets.

4. Rebecca's volunteer group baked 1,025 muffins. They will donate them to 4 hospitals. If each hospital gets the same number of muffins, what is the greatest number of muffins each hospital can get?



Each hospital can get 256 muffins; 1 muffin is left over. The extra muffin will not be included, because it cannot be divided up.

Solve the problem. Explain any remainders.

5. The Go! Cart Company has 488 model cars they can donate to 4 children's hospitals. If each hospital gets the same number of cars, how many cars will each hospital receive?

122 cars

continued on the next page

Name Answer Key

6. Lee's Flower Shop received a shipment of 780 roses. The florist puts 8 roses in each vase. How many vases can she fill?

97 vases; 4 roses left over. The extra roses will not be included, because there are not enough to fill another vase.

7. 1,032 ÷ 3 = 344

8. 2,154 ÷ 7 = 307 R5