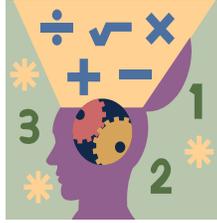


Name: \_\_\_\_\_ Section: \_\_\_\_\_

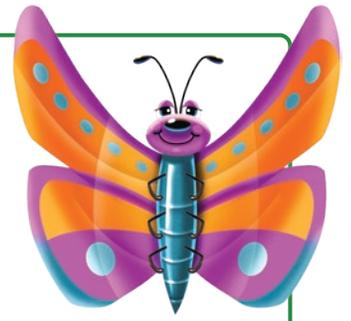


Homework

In class, we spoke about Multiplication Comparisons.  
Use place value , number-line , distributive property or models to  
help you complete the home work.

Reminders

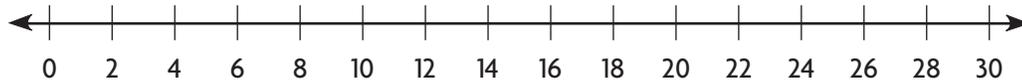
This packet is due next Monday



## Other Ways

**A** Use a number line and a pattern to multiply  $15 \times 20$ .

Draw jumps to show the product.



$15 \times 2 = \underline{\hspace{2cm}}$



$15 \times 20 = \underline{\hspace{2cm}}$

**B** Use mental math to find  $14 \times 30$ .

Use the halving-and-doubling strategy.

**STEP 1** Find half of 14 to make the problem simpler.

**Think:** To find half of a number, divide by 2.

$14 \div 2 = \underline{\hspace{2cm}}$

**STEP 2** Multiply.

$7 \times 30 = \underline{\hspace{2cm}}$

**STEP 3** Double 210.

**Think:** To double a number, multiply by 2.

$2 \times 210 = \underline{\hspace{2cm}}$

So,  $14 \times 30 = 420$ .

**Try This!** Multiply.

Use mental math to find  $12 \times 40$ .

Use place value to find  $12 \times 40$ .

## Share and Show

Math Board

1. Find  $20 \times 27$ . Tell which method you chose. Explain what happens in each step.

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Name \_\_\_\_\_

Record the product.

$$\begin{array}{r} 2. \quad 12 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 31 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} \checkmark 4. \quad 525 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} \checkmark 5. \quad 437 \\ \times 26 \\ \hline \end{array}$$

## On Your Own

Record the product.

$$\begin{array}{r} 6. \quad 54 \\ \times 15 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 87 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 962 \\ \times 56 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 749 \\ \times 63 \\ \hline \end{array}$$

$$10. \quad 38 \times 47$$

$$11. \quad 46 \times 27$$

$$12. \quad 724 \times 53$$

$$13. \quad 98 \times 169$$

$$14. \quad 53 \times 682$$

$$15. \quad 976 \times 84$$

$$16. \quad 92 \times 48$$

$$17. \quad 37 \times 79$$

**MTR** Find the unknown digits. Complete the problem.

$$\begin{array}{r} 18. \quad \square 6 \\ \times \square 4 \\ \hline 1,400 \\ 120 \\ 280 \\ + 24 \\ \hline \square \end{array}$$

$$\begin{array}{r} 19. \quad \square 2 \\ \times \square 7 \\ \hline 7,200 \\ 180 \\ 560 \\ + 14 \\ \hline \square \end{array}$$

$$\begin{array}{r} 20. \quad \square 6 \\ \times 5 \square \\ \hline 1,500 \\ 300 \\ 90 \\ + 18 \\ \hline \square \end{array}$$

$$\begin{array}{r} 21. \quad 3 \square \\ \times \square 8 \\ \hline 600 \\ 80 \\ 240 \\ + 32 \\ \hline \square \end{array}$$

Name \_\_\_\_\_

Choose a method. Then find the product.

2.  $10 \times 12$

3.  $20 \times 20$

✓ 4.  $40 \times 24$

✓ 5.  $11 \times 60$

Math  
Talk

**MTR** Complete tasks with  
**3.1** mathematical fluency.

How can you use  
 $30 \times 10 = 300$  to  
find  $30 \times 12$ ?

## On Your Own

Choose a method. Then find the product.

6.  $70 \times 55$

7.  $17 \times 30$

8.  $30 \times 60$

9.  $12 \times 90$

**MTR** Find the unknown digit in the number.

10.  $64 \times 40 = 2,56 \blacksquare$

11.  $29 \times 50 = 1, \blacklozenge 50$

12.  $3 \blacklozenge \times 47 = 1,410$

$\blacksquare =$  \_\_\_\_\_

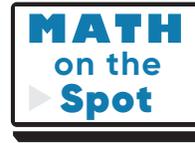
$\blacklozenge =$  \_\_\_\_\_

$\blacklozenge =$  \_\_\_\_\_

13. Carmen packs 12 jars of jam in a box. She has 40 boxes. She has 542 jars of jam. How many jars of jam will she have left when all the boxes are full?

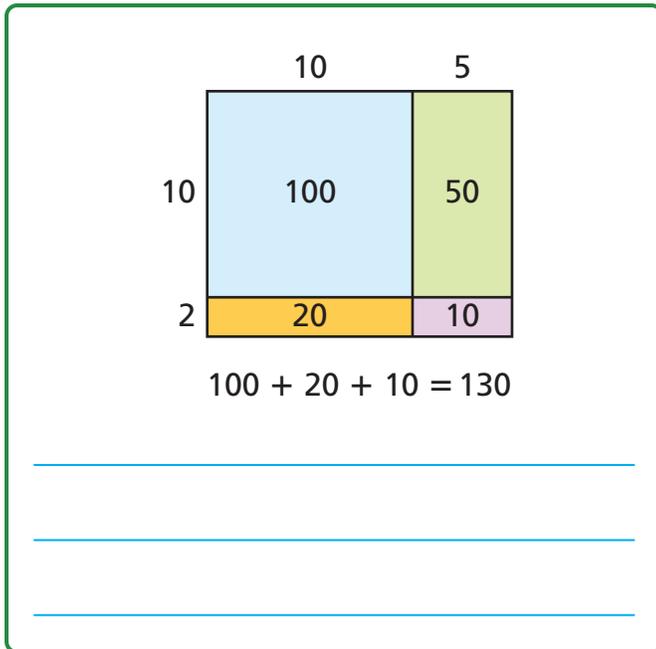
14. Adelita is preparing for a math contest. Each day, she works on multiplication problems for 20 minutes and division problems for 10 minutes. How many minutes does Adelita practice multiplication and division problems in 15 days?

## Sense or Nonsense?

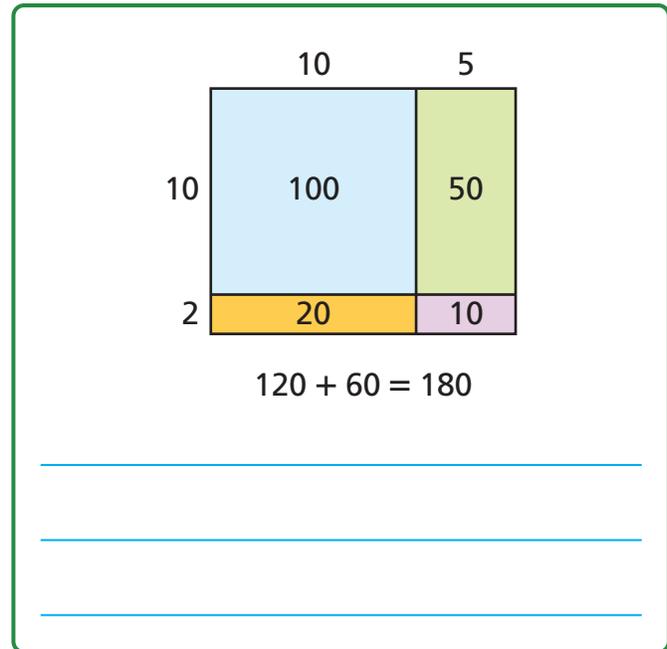


8. Jamal and Kim used different ways to solve  $12 \times 15$  by using partial products. Whose answer makes sense? Whose answer is nonsense? Explain your reasoning.

**Jamal's Work**



**Kim's Work**



- a. For the answer that is nonsense, write an answer that makes sense.

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- b. Look at Kim's method. Can you think of another way Kim could use the model to find the product? Explain.

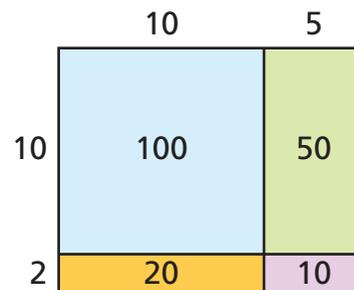
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9. Look at the model in 8b. How would the partial products change if the product was  $22 \times 15$ ? Explain why you think the products changed.

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Name \_\_\_\_\_

# Area Models and Partial Products

**I Can** use area models and partial products to multiply by 2-digit numbers.

Florida's B.E.S.T.

- Number Sense & Operations 4.NSO.2.2, 4.NSO.2.5
- Mathematical Thinking & Reasoning MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

## Investigate

**Materials** ■ color pencils

How can you use a model to break apart factors and make them easier to multiply?

- A.** Outline a rectangle on the grid to model  $13 \times 18$ . Break apart the model into smaller rectangles to show factors broken into tens and ones. Label and shade the smaller rectangles. Use the colors below.
- B.** Find the product of each smaller rectangle. Then, find the sum of the partial products. Record your answers.

 =  $10 \times 10$

 =  $10 \times 8$

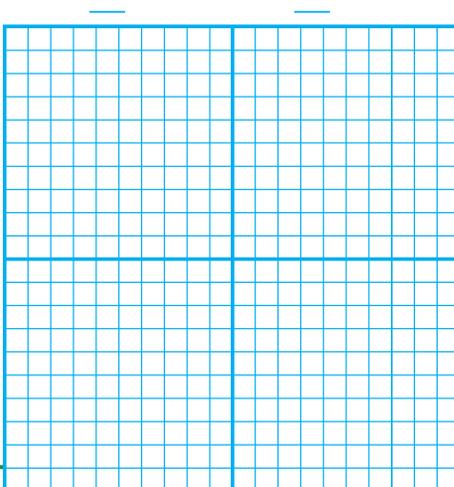
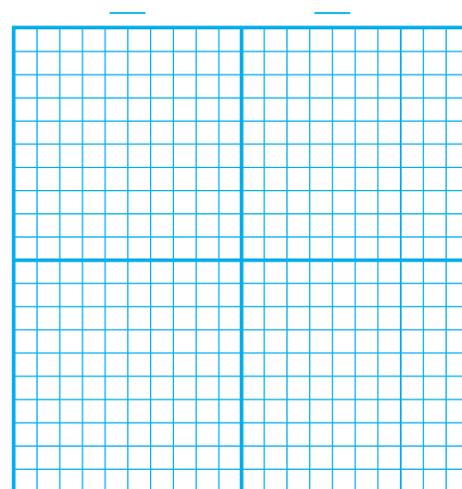
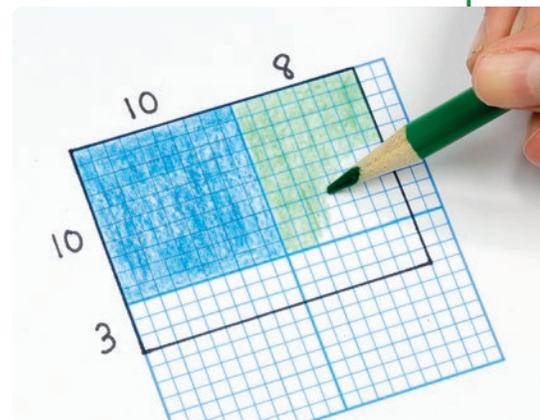
 =  $3 \times 10$

 =  $3 \times 8$

 100 +  +  +  = \_\_\_\_\_

- C.** Draw the model again. Break apart the whole model to show factors different from those shown the first time. Label and shade the four smaller rectangles and find their products. Record the sum of the partial products to represent the product of the whole model.

\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_



## Lesson Check

10. What is a reasonable estimate for the product of 43 and 68?

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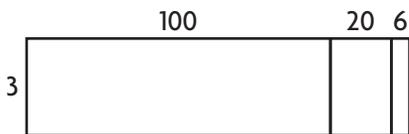
11. Marissa burns 93 calories each time she plays fetch with her dog. She plays fetch with her dog once a day. About how many calories will Marissa burn playing fetch with her dog in 28 days?

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## Spiral Review

12. Use the model to find  $3 \times 126$ .



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13. A store sold a certain brand of jeans for \$38. One day, the store sold 6 pairs of jeans of that brand. How much did the 6 pairs of jeans cost?

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14. The Gateway Arch in St. Louis, Missouri, weighs about 20,000 tons. Write an amount that could be the exact number of tons the Arch weighs.

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15. What is another name for 23 ten thousands?

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## Problem Solving · Applications

18. On average, a refrigerator door is opened 38 times each day. Kyler has two refrigerators in his house. Based on this average, about how many times in a 3-week period are the refrigerator doors opened?

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19. The cost to run a refrigerator is about \$57 each year. About how much will it have cost to run by the time it is 15 years old?

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20. If Mel opens his refrigerator door 36 times every day, about how many times will it be opened in April? Will the exact answer be more than or less than the estimate? Explain.

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21. **MTR** What question could you write for this answer? The estimated product of two numbers, that are not multiples of ten, is 2,800.

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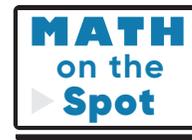
22. For numbers 22a–22d, select True or False for each sentence.

22a.  $26 \times 48$  is about  $25 \times 50$ .       true       false

22b.  $21 \times 22$  is about  $20 \times 30$ .       true       false

22c.  $28 \times 21$  is about  $30 \times 30$ .       true       false

22d.  $51 \times 26$  is about  $50 \times 25$ .       true       false



### Show the Math

Demonstrate Your Thinking

All 24 light bulbs in the Saidi family's home are CFL light bulbs. Each CFL light bulb uses 28 watts to produce light. About how many watts will the light bulbs use when turned on all at the same time?

**Another Way** Use mental math and compatible numbers.

**Compatible numbers** are numbers that are easy to compute mentally.

**Estimate.**  $24 \times 28$

**STEP 1** Use compatible numbers.

$$24 \times 28$$



$$25 \times 30$$

**Think:**  $25 \times 3 = 75$

So, about 750 watts are used.

**STEP 2** Use mental math.

$$25 \times 3 = 75$$

$$25 \times 30 = \underline{\hspace{2cm}}$$



**Try This!** Estimate  $26 \times \$79$ .

**A** Round to the nearest ten

$$26 \times \$79$$



$$\underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$26 \times \$79$  is about  $\underline{\hspace{2cm}}$ .

**B** Compatible numbers

$$26 \times \$79$$



**Think:** How can you use  $25 \times 4 = 100$  to help find  $25 \times 8$ ?

$$25 \times \$80 = \underline{\hspace{2cm}}$$

$26 \times \$79$  is about  $\underline{\hspace{2cm}}$ .

2. Explain why \$2,400 and \$2,000 are both reasonable estimates.

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3. In what situation might you choose to find an estimate rather than an exact answer?

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## Share and Show



1. To estimate the product of 62 and 28 by rounding, how would you round the factors? What would the estimated product be?

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## Lesson Check

8. For the school play, 40 rows of chairs are set up. There are 22 chairs in each row. How many chairs are there?
9. At West School, there are 20 classrooms. Each classroom has 20 students. How many students are at West School?

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## Spiral Review

10. Samira has 48 stickers. This is 6 times the number of stickers Max has. How many stickers does Max have?
11. Ali's dog weighs 8 times as much as her cat. Together, the two pets weigh 54 pounds. How much does Ali's dog weigh?

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12. Trinity has 3 containers with 25 crayons in each. She also has 4 boxes of markers with 12 markers in each box. She gives 10 crayons to a friend. How many crayons and markers does Trinity have now?
13. The state of Utah covers 82,144 square miles. The state of Montana covers 145,552 square miles. What is the total area of the two states?

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# Problem Solving · Applications

Use the table for 15–16.

15. **MTR** How many frames did it take to produce 50 seconds of *Pinocchio*?

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16. Are there fewer frames in 10 seconds of *The Flintstones* or in 14 seconds of *The Enchanted Drawing*? What is the difference in the number of frames?

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17. The product of my number and twice my number is 128. What is half my number? Explain how you solved the problem.

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18. Tanya says that the product of a multiple of ten and a multiple of ten will always have only one zero. Is she correct? Explain.

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19. For numbers 19a–19e, select Yes or No to tell whether the answer is correct.

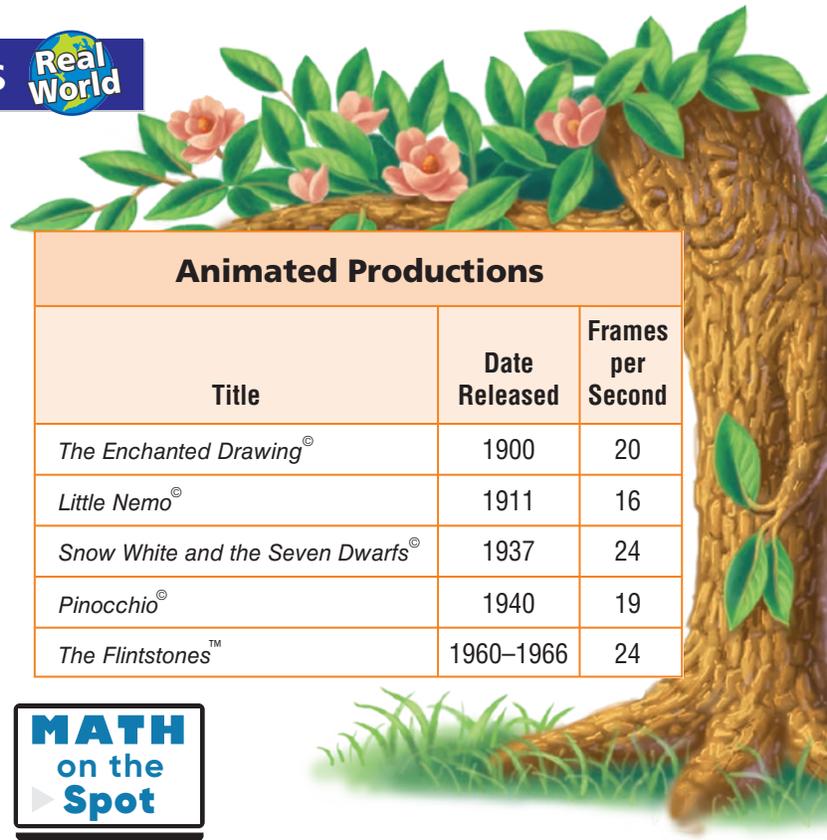
19a.  $28 \times 10 = 280$        Yes       No

19b.  $15 \times 20 = 300$        Yes       No

19c.  $17 \times 10 = 17$        Yes       No

19d.  $80 \times 10 = 800$        Yes       No

19e.  $16 \times 30 = 1,800$        Yes       No



Animated Productions		
Title	Date Released	Frames per Second
<i>The Enchanted Drawing</i> ®	1900	20
<i>Little Nemo</i> ®	1911	16
<i>Snow White and the Seven Dwarfs</i> ®	1937	24
<i>Pinocchio</i> ®	1940	19
<i>The Flintstones</i> ™	1960–1966	24

## Show the Math

Demonstrate Your Thinking