Name _____ Date _____

Extension
Lesson 1

Finding Patterns in the Multiplication Table

Complete the related number sentences.

Look for a shortcut for solving the third problem in each group.

Example

$10 \times 3 = \underline{30}$

$7 \times 3 = \underline{21}$

$17 \times 3 = \underline{51}$

1. $8 \times 4 =$ _____
   $9 \times 4 =$ _____
   $17 \times 4 =$ _____

2. $10 \times 8 =$ _____
   $9 \times 8 =$ _____
   $19 \times 8 =$ _____

3. $20 \times 5 =$ _____
   $9 \times 5 =$ _____
   $29 \times 5 =$ _____

4. $9 \times 7 =$ _____
   $7 \times 7 =$ _____
   $16 \times 7 =$ _____

5. $30 \times 6 =$ _____
   $8 \times 6 =$ _____
   $38 \times 6 =$ _____

6. $30 \times 6 =$ _____
   $2 \times 6 =$ _____
   $28 \times 6 =$ _____

7. $40 \times 9 =$ _____
   $7 \times 9 =$ _____
   $33 \times 9 =$ _____

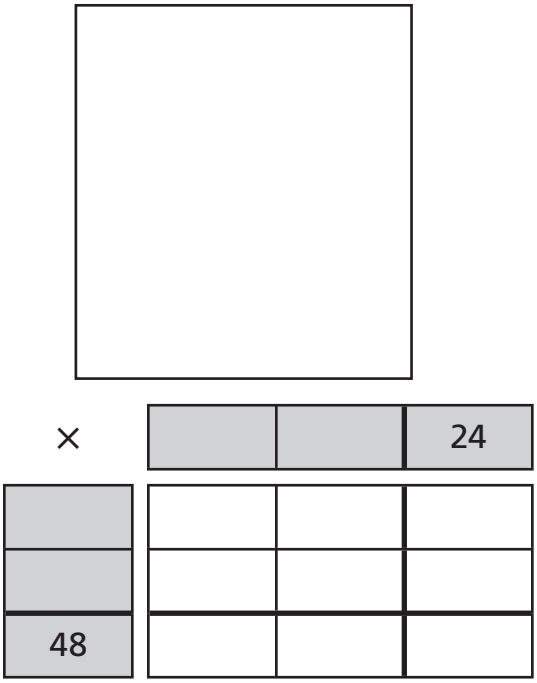
Name _____ Date _____

Extension
Lesson 2

Splitting Area Models

Draw lines (one vertical and one horizontal) to split a 24 × 48 area model. Complete a puzzle to match. Split each area model a different way.

1



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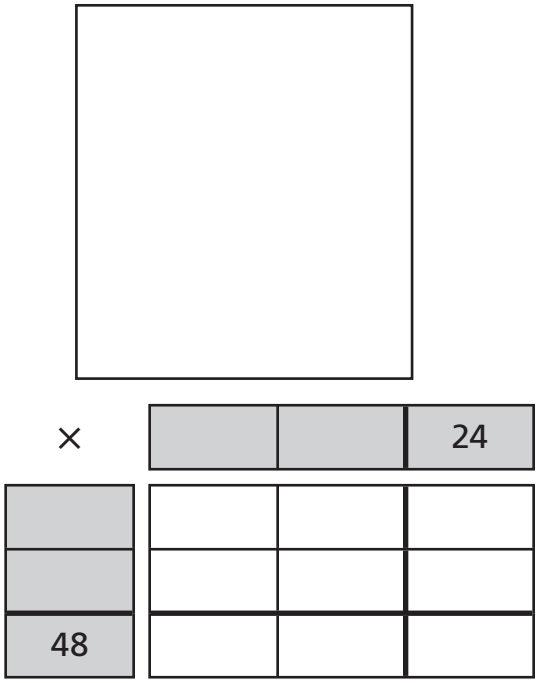

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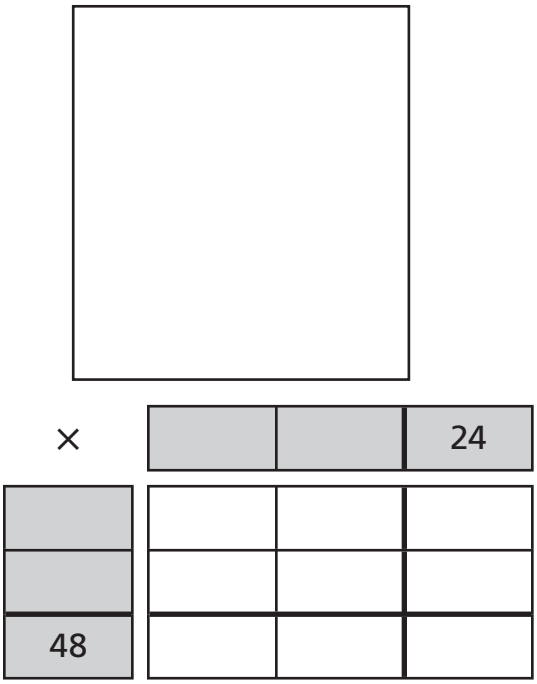

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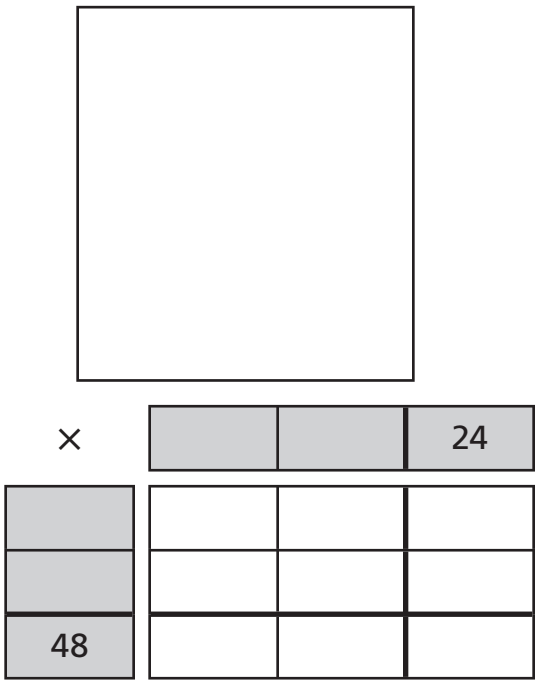


Name _____ Date _____

Extension
Lesson 3

Doubling and Adding

In each group, use the first fact to help you complete the others.

1. $18 \times 12 = \underline{216}$
   $19 \times 12 = \_\_\_\_\_$
   $19 \times 13 = \_\_\_\_\_$

2. $16 \times 17 = \underline{272}$
   $15 \times 17 = \_\_\_\_\_$
   $17 \times 17 = \_\_\_\_\_$

3. $20 \times 30 = \underline{600}$
   $20 \times 31 = \_\_\_\_\_$
   $21 \times 31 = \_\_\_\_\_$
   $21 \times 30 = \_\_\_\_\_$

4. $30 \times 25 = \underline{750}$
   $29 \times 25 = \_\_\_\_\_$
   $29 \times 26 = \_\_\_\_\_$
   $31 \times 26 = \_\_\_\_\_$

5. $42 \times 36 = \underline{1{,}512}$
   $43 \times 36 = \_\_\_\_\_$
   $43 \times 35 = \_\_\_\_\_$
   $42 \times 35 = \_\_\_\_\_$

6. $66 \times 24 = \underline{1{,}584}$
   $68 \times 24 = \_\_\_\_\_$
   $68 \times 23 = \_\_\_\_\_$
   $67 \times 23 = \_\_\_\_\_$

Name _____ Date _____

Extension
Lesson 4

Multiplying by Multiples of 10

Complete the puzzles.

1

×			49
70			

2

×			80
62			

3

×		40	
		320	
50	150		

4

×			150
140			

5

×		60	
50	3,500		
		2,400	

6

×	200		
	60,000		
300		90,000	

Name _____ Date _____

Extension
Lesson 5

Working with Large Numbers

Write the number that is fifty million greater than each number.

1. one hundred twenty million, four hundred twelve

   _____

2. six billion, two hundred sixty-five million, fifty thousand, six hundred fifteen

   _____

Write numbers to complete the number sentences.

3. ___,___,___ (>) 96,321,999 (>) ___,___,___

4. ___,___,___,___ (<) 702,345,960,200 (<) ___,___,___,___

5. ___,___,___,___ (>) 89,946,378,499 (>) ___,___,___,___

Name _____ Date _____

Extension
Lesson 6

Estimating Products

Fill in the missing numbers in the area models and number sentences.

1

	200	5
40		800
		30

$225 \times 46 =$ _____

2

	20	
30	12,000	
	140	56

_____ × _____ = _____

3

	80	
	4,800	
9	2,700	63

_____ × _____ = _____

Name _____ Date _____

Extension
Lesson 7

Estimating in Various Ways

Make one estimate greater than the original product and make another estimate that is less than the original product.

Example

$$\underline{200} \times \underline{500} < 235 \times 587 < \underline{300} \times \underline{600}$$

$$\underline{100{,}000} < 235 \times 587 < \underline{180{,}000}$$

1

$$\_\_\_\_ \times \_\_\_\_ < 456 \times 272 < \_\_\_\_ \times \_\_\_\_$$

$$\_\_\_\_\_ < 456 \times 272 < \_\_\_\_\_$$

2

$$\_\_\_\_ \times \_\_\_\_ < 85 \times 458 < \_\_\_\_ \times \_\_\_\_$$

$$\_\_\_\_\_ < 85 \times 458 < \_\_\_\_\_$$

3

$$\_\_\_\_ \times \_\_\_\_ < 115 \times 67 < \_\_\_\_ \times \_\_\_\_$$

$$\_\_\_\_\_ < 115 \times 67 < \_\_\_\_\_$$

Name _____ Date _____

Extension
Lesson 8

Discovering a Useful Multiplication Pattern

Complete the related number sentences.

1. $50 \times 50 =$ _____

   $51 \times 49 =$ _____

2. $40 \times 40 =$ _____

   $41 \times 39 =$ _____

3. $60 \times 60 =$ _____

   $59 \times 61 =$ _____

4. $90 \times 90 =$ _____

   $89 \times 91 =$ _____

5. $60 \times 62 =$ _____

   $61 \times 61 =$ _____

6. $72 \times 70 =$ _____

   $71 \times 71 =$ _____

7. $19 \times$ ____ $=$ _____

   $18 \times 20 =$ _____

8. ____ $\times$ ____ $=$ _____ $+ 1$

   $79 \times 81 =$ _____

Name _____ Date _____

Extension
Lesson 9

Extending the Multiplication Pattern

Fill in the missing numbers.

1

Steps Away	13 × 13 = _____
1	12 × ____ = 168
2	____ × 15 = _____
3	____ × ____ = _____
4	____ × ____ = _____

2

Steps Away	20 × 20 = _____
1	____ × ____ = _____
2	____ × ____ = _____
3	17 × ____ = _____
4	____ × 24 = _____

3

Steps Away	61 × 61 = _____
1	____ × ____ = _____
2	____ × ____ = _____
3	____ × ____ = _____
4	65 × ____ = 3,705

4

Steps Away	42 × 42 = _____
1	____ × ____ = _____
2	____ × ____ = _____
3	____ × 39 = 1,755
4	____ × ____ = _____

5

Steps Away	55 × 55 = _____
1	54 × ____ = _____
2	____ × ____ = _____
3	____ × ____ = _____
4	____ × ____ = 3,009

6

Steps Away	76 × 76 = _____
1	____ × ____ = _____
2	____ × ____ = _____
3	____ × ____ = _____
4	____ × ____ = 5,760

Name _____ Date _____

Extension
Lesson 10

Investigating Why the Pattern Works

Complete the number sentences.

1. $25 \times 25 = \boxed{625}$

   $26 \times 24 = \boxed{} = \underline{625} - 1$

   $27 \times 23 = \boxed{} = \_\_\_\_ - \_\_\_\_$

   $28 \times 22 = \boxed{} = \_\_\_\_ - \_\_\_\_$

   $29 \times 21 = \boxed{} = \_\_\_\_ - \_\_\_\_$

2. $40 \times 40 = \boxed{}$

   $41 \times 39 = \boxed{} = \_\_\_\_ - \_\_\_\_$

   $42 \times 38 = \boxed{} = \_\_\_\_ - \_\_\_\_$

   $43 \times 37 = \boxed{} = \_\_\_\_ - \_\_\_\_$

   $44 \times 36 = \boxed{} = \_\_\_\_ - \_\_\_\_$

Use a square number fact to help you to complete the number sentences.

3. $29 \times 31 =$ _____

4. $46 \times 54 =$ _____

5. $52 \times 48 =$ _____

6. $63 \times 57 =$ _____

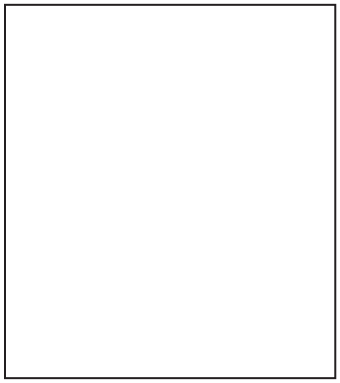
Name _____ Date _____

Extension
Lesson 11

Finding Products of Large Factors

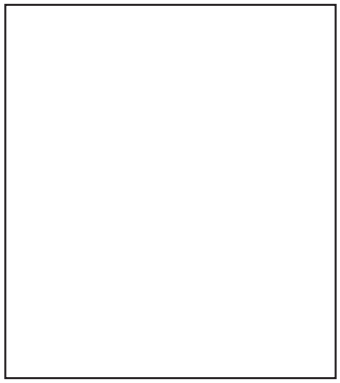
Draw lines to show how you would split the area model and write in the partial products. Record the total.

1



$$\begin{array}{r} 42 \\ \times\ 67 \\ \hline \end{array}$$

2



$$\begin{array}{r} 33 \\ \times\ 46 \\ \hline \end{array}$$

Complete the puzzles and diagrams.

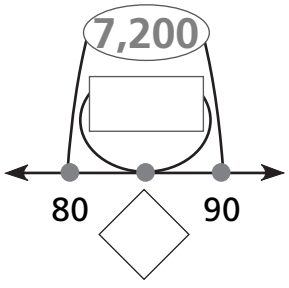
3

×			29
24			

4

×			38
45			

5



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