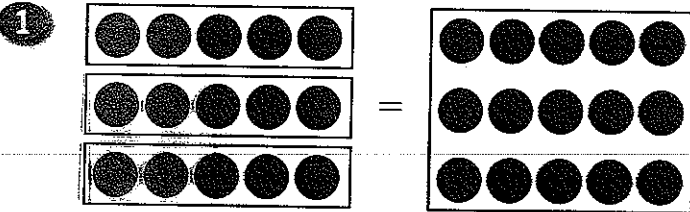


Multiplication
 Fractions
 Product
 Multiplication Property of One
 Multiplication Property of Zero

Meaning of Multiplication

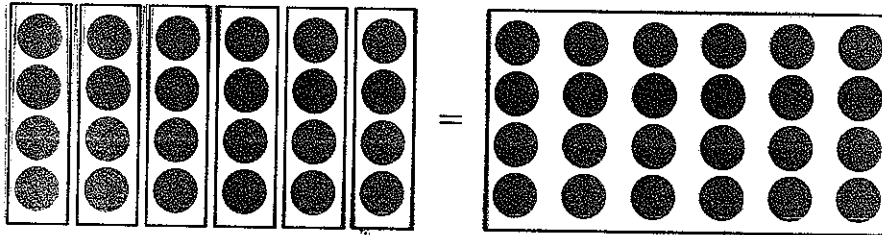
Name _____ Class _____ Date _____

GET STARTED

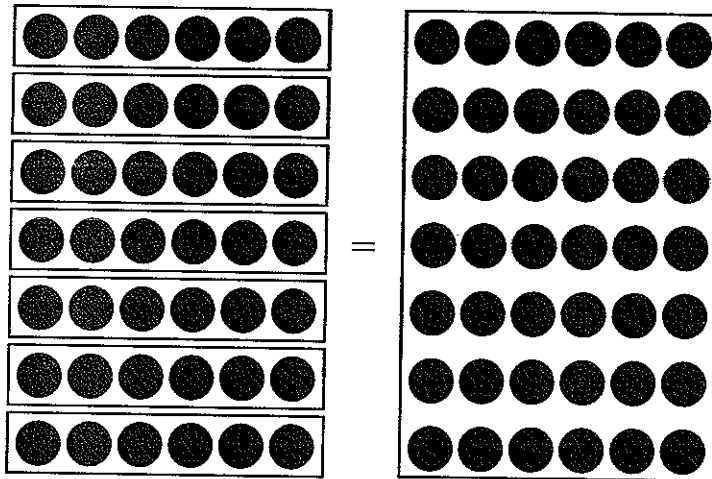


3 groups of 5 circles = $5 + 5 + 5 =$ _____

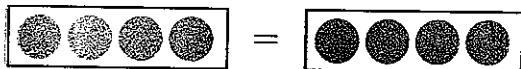
$3 \times 5 =$ _____ + _____ + _____ = _____



$6 \times 4 =$ _____ + _____ + _____ + _____ + _____ + _____ = _____



$7 \times 6 =$ _____ + _____ + _____ + _____ + _____ + _____ + _____ = _____



$1 \times 4 =$ _____

$0 \times 8 =$ _____

TRY IT TOGETHER

Find each product.

7 $4 \times 10 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

8 $1 \times 6 = \underline{\quad}$

9 $3 \times 9 = \underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

10 $5 \times 2 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$

11 $0 \times 7 = \underline{\quad}$

WORK ON YOUR OWN**HOW
TO****Multiply****Using Symbols**

$4 \times 3 = 3 + 3 + 3 + 3 = 12$

Using Words

Add the second factor the number of times indicated by the first factor.

Use the Multiplication Property of Zero**Using Symbols**

$0 \times 9 = 0$

Using Words

When one of the factors is 0, the product is always 0.

Use the Multiplication Property of One**Using Symbols**

$1 \times 5 = 5$

Using Words

When one of the factors is 1, the product is always the other factor.

Multiplication Facts: 2, 5, and 10

Name: _____ Class: _____ Date: _____

GET STARTED

1 0, 2, 4, 6, 8, 10, 12, 14, 16, _____

2 0, 5, 10, 15, 20, 25, 30, _____, _____, _____

3 0, 10, 20, 30, 40, 50, 60, _____, _____, _____

4 $0 \times 2 =$ _____

$1 \times 2 =$ _____

$2 \times 2 =$ _____

$3 \times 2 =$ _____

$4 \times 2 =$ _____

$5 \times 2 =$ _____

$6 \times 2 =$ _____

$7 \times 2 =$ _____

$8 \times 2 =$ _____

$9 \times 2 =$ _____

5 $0 \times 5 =$ _____

$1 \times 5 =$ _____

$2 \times 5 =$ _____

$3 \times 5 =$ _____

$4 \times 5 =$ _____

$5 \times 5 =$ _____

$6 \times 5 =$ _____

$7 \times 5 =$ _____

$8 \times 5 =$ _____

$9 \times 5 =$ _____

6 $0 \times 10 =$ _____

$1 \times 10 =$ _____

$2 \times 10 =$ _____

$3 \times 10 =$ _____

$4 \times 10 =$ _____

$5 \times 10 =$ _____

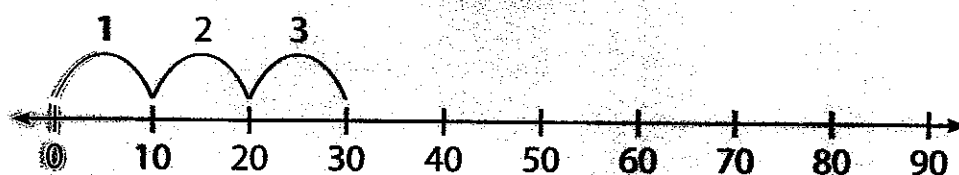
$6 \times 10 =$ _____

$7 \times 10 =$ _____

$8 \times 10 =$ _____

$9 \times 10 =$ _____

Use the number line to find 6×10 .



$6 \times 10 =$ _____

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each product.

7 $9 \times 5 = \underline{\hspace{2cm}}$

8 $6 \times 2 = \underline{\hspace{2cm}}$

9
$$\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$$

10
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

WORK ON YOUR OWN

Multiply by 2, 5, and 10

HOW
TO

Using Symbols

$4 \times 2 = 8$

Count by 2:

2, 4, 6, (8)

↑
4 times

$8 \times 5 = 40$

Count by 5:

5, 10, 15, 20, 25, 30, 35, (40)

↑
8 times

$10 \times 3 = 30$

Count by 10:

10, 20, (30)

↑
3 times

Using Words

When one of the factors is 2, count by 2 the number of times given by the other factor.

When one of the factors is 5, count by 5 the number of times given by the other factor. The ones digit of the product will be either 0 or 5.

When one of the factors is 10, count by 10 the number of times given by the other factor. The ones digit of the product will always be 0.

Multiplication Facts: 3, 4, and 6

Name _____ Class _____ Date _____

GET STARTED

1 0, 3, 6, 9, 12, 15, 18, 21, _____, _____

2 0, 4, 8, 12, 16, 20, 24, _____, _____, _____

3 0, 6, 12, 18, 24, 30, 36, _____, _____, _____

4 $0 \times 3 =$ _____

$1 \times 3 =$ _____

$2 \times 3 =$ _____

$3 \times 3 =$ _____

$4 \times 3 =$ _____

$5 \times 3 =$ _____

$6 \times 3 =$ _____

$7 \times 3 =$ _____

$8 \times 3 =$ _____

$9 \times 3 =$ _____

5 $0 \times 4 =$ _____

$1 \times 4 =$ _____

$2 \times 4 =$ _____

$3 \times 4 =$ _____

$4 \times 4 =$ _____

$5 \times 4 =$ _____

$6 \times 4 =$ _____

$7 \times 4 =$ _____

$8 \times 4 =$ _____

$9 \times 4 =$ _____

6 $0 \times 6 =$ _____

$1 \times 6 =$ _____

$2 \times 6 =$ _____

$3 \times 6 =$ _____

$4 \times 6 =$ _____

$5 \times 6 =$ _____

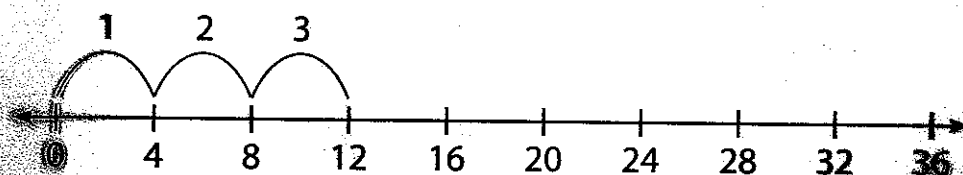
$6 \times 6 =$ _____

$7 \times 6 =$ _____

$8 \times 6 =$ _____

$9 \times 6 =$ _____

Use the number line to find the product of 7 and 4.



$7 \times 4 =$ _____

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each product.

7 $8 \times 4 = \underline{\hspace{2cm}}$

8 $9 \times 6 = \underline{\hspace{2cm}}$

9
$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

10
$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

WORK ON YOUR OWN

Multiply by 3, 4, and 6

HOW
TO

Using Symbols

$2 \times 3 = 6$

Count by 3:

3, (6)

↑
2 times

Using Words

When one of the factors is 3, count by 3 the number of times given by the other factor.

$5 \times 4 = 20$

Count by 4:

4, 8, 12, 16, (20)

↑
5 times

When one of the factors is 4, count by 4 the number of times given by the other factor.

$3 \times 6 = 18$

Count by 6:

6, 12, (18)

↑
3 times

When one of the factors is 6, count by 6 the number of times given by the other factor.

Multiplication Facts: 7, 8, and 9

Class _____ Date _____

GET STARTED

1 $0, 7, 14, 21, 28, 35, 42, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

2 $0, 8, 16, 24, 32, 40, 48, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

3 $0, 9, 18, 27, 36, 45, 54, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

4 $0 \times 7 = \underline{\hspace{1cm}}$

$1 \times 7 = \underline{\hspace{1cm}}$

$2 \times 7 = \underline{\hspace{1cm}}$

$3 \times 7 = \underline{\hspace{1cm}}$

$4 \times 7 = \underline{\hspace{1cm}}$

$5 \times 7 = \underline{\hspace{1cm}}$

$6 \times 7 = \underline{\hspace{1cm}}$

$7 \times 7 = \underline{\hspace{1cm}}$

$8 \times 7 = \underline{\hspace{1cm}}$

$9 \times 7 = \underline{\hspace{1cm}}$

5 $0 \times 8 = \underline{\hspace{1cm}}$

$1 \times 8 = \underline{\hspace{1cm}}$

$2 \times 8 = \underline{\hspace{1cm}}$

$3 \times 8 = \underline{\hspace{1cm}}$

$4 \times 8 = \underline{\hspace{1cm}}$

$5 \times 8 = \underline{\hspace{1cm}}$

$6 \times 8 = \underline{\hspace{1cm}}$

$7 \times 8 = \underline{\hspace{1cm}}$

$8 \times 8 = \underline{\hspace{1cm}}$

$9 \times 8 = \underline{\hspace{1cm}}$

6 $0 \times 9 = \underline{\hspace{1cm}}$

$1 \times 9 = \underline{\hspace{1cm}}$

$2 \times 9 = \underline{\hspace{1cm}}$

$3 \times 9 = \underline{\hspace{1cm}}$

$4 \times 9 = \underline{\hspace{1cm}}$

$5 \times 9 = \underline{\hspace{1cm}}$

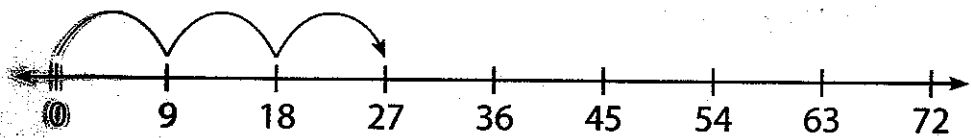
$6 \times 9 = \underline{\hspace{1cm}}$

$7 \times 9 = \underline{\hspace{1cm}}$

$8 \times 9 = \underline{\hspace{1cm}}$

$9 \times 9 = \underline{\hspace{1cm}}$

Use the number line to find the product of 6 and 9.



$6 \times 9 = \underline{\hspace{1cm}}$

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each product.

7 $5 \times 8 =$ _____

8 $3 \times 9 =$ _____

9
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

10
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

WORK ON YOUR OWN

Multiply by 7, 8, and 9

Using Symbols

$6 \times 7 = 42$

Count by 7:

7, 14, 21, 28, 35, 42

↑
6 times

Using Words

When one of the factors is 7, count by 7 the number of times given by the other factor.

$5 \times 8 = 40$

Count by 8:

8, 16, 24, 32, 40

↑
5 times

When one of the factors is 8, count by 8 the number of times given by the other factor.

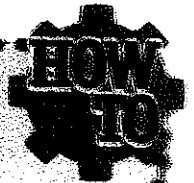
$3 \times 9 = 27$

Count by 9:

9, 18, 27

↑
3 times

When one of the factors is 9, count by 9 the number of times given by the other factor.



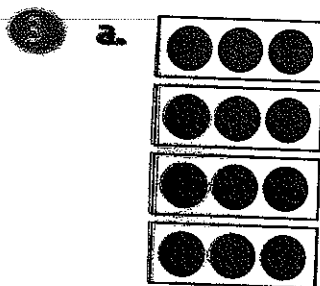
Properties of Multiplication

Name: _____ Class: _____ Date: _____

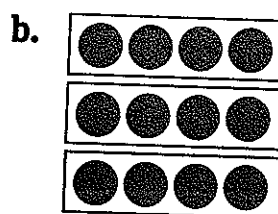
GET STARTED

1. $2 \times 8 =$ _____

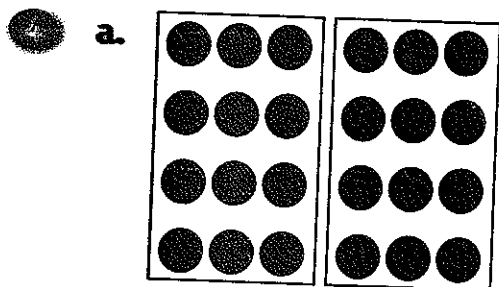
2. $6 \times 4 =$ _____



$4 \times 3 =$ _____

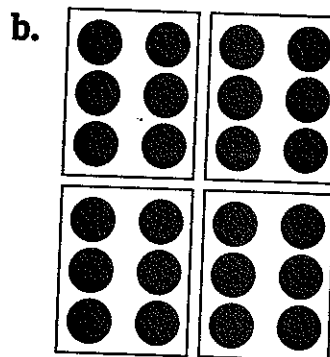


$3 \times 4 =$ _____



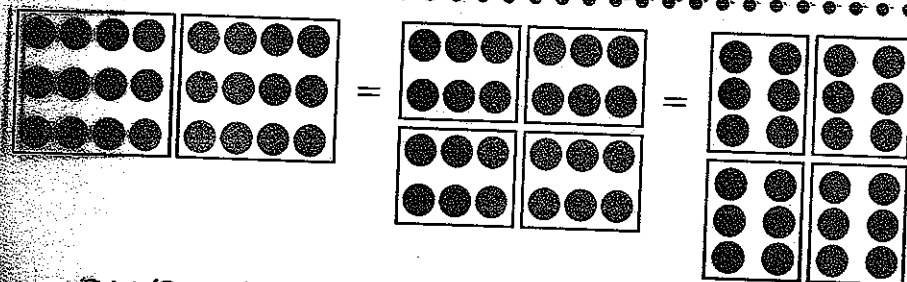
$(4 \times 3) \times 2$

$\downarrow \quad \downarrow$
 _____ $\times 2 =$ _____



$4 \times (3 \times 2)$

$\downarrow \quad \downarrow$
 $4 \times$ _____ $=$ _____



$2 \times (3 \times 4) = (2 \times 3) \times 4 = (3 \times 2) \times 4 =$ _____

**BUILD
 THE
 CONCEPT**

TRY IT TOGETHER

Name the property shown. Use the property to find the missing numbers.

5 $3 \times 6 = \underline{\quad} \times 3 = \underline{\quad}$

6 $5 \times (3 \times 4) = (\underline{\quad} \times 3) \times 4 = \underline{\quad}$

WORK ON YOUR OWN

Find a Product Using the Commutative and Associative Properties of Multiplication

HOW TO

Using Symbols

$$6 \times 5 = 5 \times 6$$

$$6 \times 5 = 30$$

$$5 \times 6 = 30$$

$$(3 \times 4) \times 5 = 3 \times (4 \times 5)$$

$$(3 \times 4) \times 5 = 12 \times 5 = 60$$

$$3 \times (4 \times 5) = 3 \times 20 = 60$$

Using Words

Commutative Property of Multiplication:
Two factors can be multiplied in any order and the product will be the same.

Associative Property of Multiplication:
Three factors can be grouped in different ways and the product will be the same.

Multiplying by a 1-Digit Number with No Regrouping

Name _____ Class _____ Date _____

GET STARTED

1 $7 \times 4 =$ _____

2 $4 \times 7 =$ _____

3 3×23

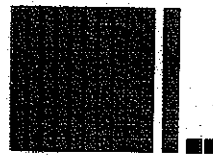
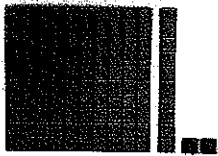
$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

4 104×2

$$\begin{array}{r} 104 \\ \times 2 \\ \hline \end{array}$$

Use the base-10 pieces to find the product of 3 and 112.

**BUILD
THE
CONCEPT**



_____ hundreds _____ tens _____ ones = _____

So, 3×112 is equal to _____.

TRY IT TOGETHER

Find each product.

$$\begin{array}{r} 5 \quad 43 \times 2 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \quad 4 \times 211 \\ \times 4 \\ \hline \end{array}$$

$$7 \quad 123 \times 3$$

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

$$8 \quad 141 \times 2$$

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

WORK ON YOUR OWN

Multiply by a 1-Digit Number with No Regrouping

HOW TO

Using Symbols

$$1. \quad 3 \times 203$$

$$\begin{array}{r} 203 \\ \times 3 \\ \hline \end{array}$$

Using Words

Write the problem vertically with the number with more digits on top. Line the numbers up on the right.

$$\begin{array}{r} 2. \quad 203 \\ \times 3 \\ \hline 9 \end{array}$$

Multiply the ones digit, and write the product under the equal bar in the ones place.

$$\begin{array}{r} 3. \quad 203 \\ \times 3 \\ \hline 09 \end{array}$$

Multiply the next digit to the left and write the product under the equal bar in the tens column.

$$\begin{array}{r} 4. \quad 203 \\ \times 3 \\ \hline 609 \end{array}$$

Repeat step 3 until all digits have been multiplied.

So, 3×203 is 609.

Multiplying by a 1-Digit Number with Regrouping

Name _____ Class _____ Date _____

GET STARTED

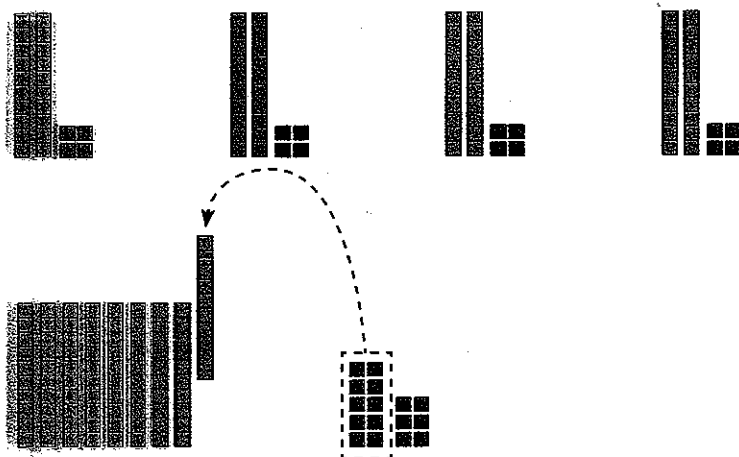
①
$$\begin{array}{r} 42 \\ \times 2 \\ \hline \end{array}$$

②
$$\begin{array}{r} 57 \\ + 68 \\ \hline \end{array}$$

③
$$\begin{array}{r} 14 \\ \times 7 \\ \hline \end{array}$$

④
$$\begin{array}{r} 4 \times 316 \\ \times \\ \hline \end{array}$$

Use the base-10 pieces to find the product of 4 and 24.



_____ tens _____ ones = _____

So, 4×24 is _____.

**BUILD
THE
CONCEPT**

TRY IT TOGETHER

Find each product. Regroup as needed.

5 758×2

$$\begin{array}{r} 758 \\ \times 2 \\ \hline \end{array}$$

6 9×609

$$\begin{array}{r} 609 \\ \times 9 \\ \hline \end{array}$$

7 27×3

$$\begin{array}{r} 27 \\ \times 3 \\ \hline \end{array}$$

8 6×114

$$\begin{array}{r} 114 \\ \times 6 \\ \hline \end{array}$$

WORK ON YOUR OWN



Multiply by a 1-Digit Number with No Regrouping

Using Symbols

1. 5×256

$$\begin{array}{r} 256 \\ \times 5 \\ \hline \end{array}$$

Using Words

Write the numbers vertically with the number with more digits on top. Line the numbers up on the right.

2. 5×256

$$\begin{array}{r} 256 \\ \times 5 \\ \hline 0 \end{array}$$

Multiply the ones digit, and write the product under the equal bar in the ones place. If the product has more than one digit, regroup.

3. 5×256

$$\begin{array}{r} 256 \\ \times 5 \\ \hline 80 \end{array}$$

Multiply the next digit to the left, and write the product under the equal bar. If the product has more than one digit, regroup.

4. 5×256

$$\begin{array}{r} 256 \\ \times 5 \\ \hline 1,280 \end{array}$$

Repeat step 3 until all digits have been multiplied. When regrouping, be sure to add the regrouped digit to the product of the next digit.

Multiplying with Multiples of 10

Name _____ Class _____ Date _____

GET STARTED

$$\begin{array}{r} 10 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 100 \\ \times 3 \\ \hline \end{array}$$

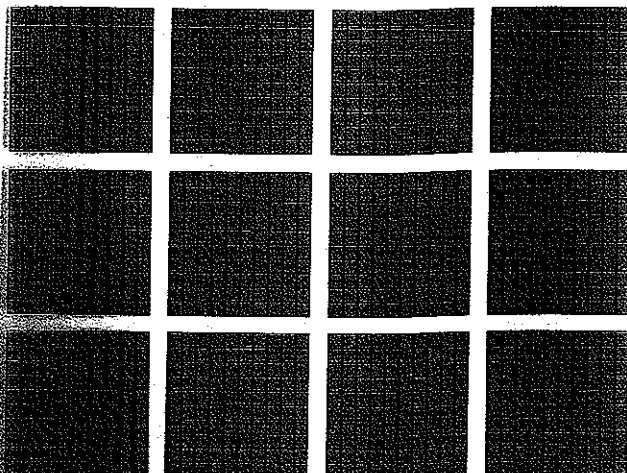
$$\begin{array}{r} 70 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \times 400 \quad 400 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \times 900 \quad 900 \\ \times 30 \\ \hline \end{array}$$

The model shows 3×400 .



$$3 \times 400 = 3 \times 4 \times \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}} \times 100$$

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

BUILD THE CONCEPT

TRY IT TOGETHER

Find each product.

7 5×600 600
 $\times 5$

8 8×80 80
 $\times 8$

9 $7,000$
 $\times 400$

WORK ON YOUR OWN

HOW
TO

Multiply with Multiples of 10

Using Symbols

1. 800×60 3 zeros
 ↓

2. $800 \times 60 = 000$

3. $800 \times 60 = 48,000$

Using Words

Count the zeros in both factors.

Write the same number of zeros in the answer as was counted in both factors.

Multiply the nonzero numbers, and write the product to the left of the zeros in the answer.

Multiplying by a 2-Digit Number with No Regrouping

Name: _____ Class _____ Date _____

GET STARTED

1 $23 = \underline{\hspace{2cm}}$ tens + $\underline{\hspace{2cm}}$ ones

2
$$\begin{array}{r} 31 \\ \times 3 \\ \hline \end{array}$$

3
$$\begin{array}{r} 31 \\ \times 20 \\ \hline \end{array}$$

4 a.
$$\begin{array}{r} 31 \\ \times 23 \\ \hline \end{array}$$

 $\leftarrow 3 \times 31$

b.
$$\begin{array}{r} 31 \\ \times 23 \\ \hline 93 \\ \hline \end{array}$$

 $\leftarrow 3 \times 31$
 $\leftarrow 20 \times 31$

c.
$$\begin{array}{r} 31 \\ \times 23 \\ \hline 93 \\ \hline + 620 \\ \hline \end{array}$$

 $\leftarrow 3 \times 31$
 $\leftarrow 20 \times 31$

5 a.
$$\begin{array}{r} 42 \\ \times 12 \\ \hline \end{array}$$

 $\leftarrow 2 \times 42$

b.
$$\begin{array}{r} 42 \\ \times 12 \\ \hline 84 \\ \hline \end{array}$$

 $\leftarrow 2 \times 42$
 $\leftarrow 10 \times 42$

c.
$$\begin{array}{r} 42 \\ \times 12 \\ \hline 84 \\ \hline + 420 \\ \hline \end{array}$$

 $\leftarrow 2 \times 42$
 $\leftarrow 10 \times 42$

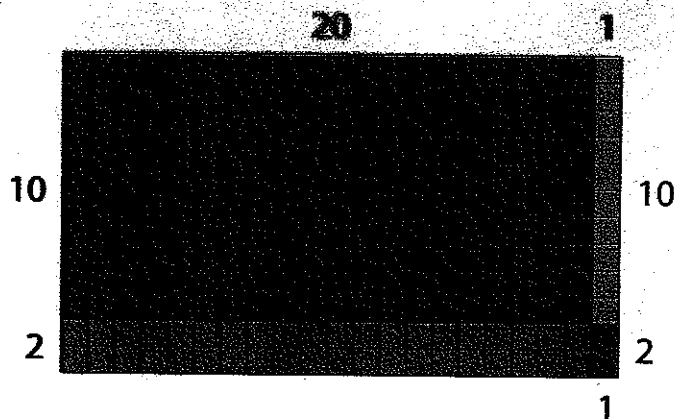
$21 = 20 + 1$
 $\times 12 = 10 + 2$

$10 \times 20 = \underline{\hspace{2cm}}$

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

$10 \times 1 = \underline{\hspace{2cm}}$

$2 \times 1 = \underline{\hspace{2cm}}$



$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

So, $12 \times 21 = \underline{\hspace{2cm}}$.

**BUILD
THE
CONCEPT**