Multiply Whole Numbers

Name: _____
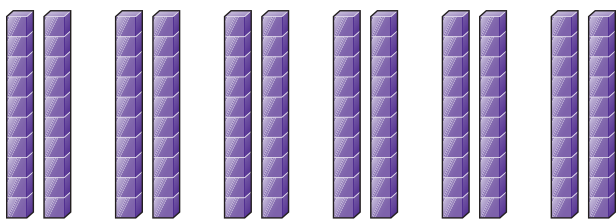
Prerequisite: Multiply by a Multiple of 10

Study the example showing how to multiply by a multiple of 10. Then solve problems 1–7.

Example

Roy swims for 20 minutes a day, 6 days a week. How many minutes does Roy swim in a week?

Use base-ten blocks.

6 groups of 2 tens is
6×2 tens, or 12 tens.
12 tens $= 120$

Use factors and grouping to multiply.	6×20
Break down 20 into factors 2 and 10.	$6 \times (2 \times 10)$
Change grouping and multiply.	$(6 \times 2) \times 10$ $12 \times 10 = 120$

Roy swims 120 minutes in a week.

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1 The base-ten blocks below show 4×30.

Fill in the blanks to find the product.

_____ groups of _____ tens is _____ $\times$ _____ tens,

or _____ tens. _____ tens $=$ _____.

2 Show how to use factors and grouping to find the product of 4×30.

3 Find the missing number.

_____ $\times 3 = 120$ $2 \times$ _____ $= 120$

Vocabulary

factors numbers that are multiplied together to get a product.

product the result of multiplication.

$6 \times 20 = 120$

factors   product

Solve.

4 Saundra has 8 folders on her computer. Each folder has 50 files. How many files are on Saundra's computer?

Show your work.

Solution: _____

5 There are 5 ten-pound bags and 8 twenty-pound bags of rice on a shelf. How many pounds of rice are on the shelf?

Show your work.

Solution: _____

6 Lola gets two 20-minute breaks at work each day. She works 5 days a week. How much time does she spend on break each week?

Show your work.

Solution: _____

7 Andrew wants to buy 3 video games that are $50 each. He earns $80 a week. In how many weeks will he have enough money to buy the games?

Show your work.

First find the total cost of the video games. Then compare the cost to the amount he earns in a week.

Solution: _____

Name: _____

Multiply by a One-Digit Number

Study the example showing one way to multiply by a one-digit number. Then solve problems 1–5.

Example

Jesse's family has 4 music players. Each music player can hold 8,352 songs. What is the total number of songs all 4 music players can hold?

Use an area model.

	8,000	+	300	+	50	+	2
4	4 × 8,000		4 × 300		4 × 50		4 × 2

$$4 \times 8,352 = (4 \times 8,000) + (4 \times 300) + (4 \times 50) + (4 \times 2)$$
$$= 32,000 + 1,200 + 200 + 8$$
$$= 33,408$$

All 4 music players can hold 33,408 songs.

1 Look at the multiplication above. Use partial products to multiply 4 × 8,352. Fill in the blanks.

```
      8 , 3  5  2
  ×           4
  ─────────────────
              8  ⟶ _____ × 2 ones
      2   0   0  ⟶ 4 × 5 _____
  □,□□□  ⟶ 4 × _____ hundreds
+ 3  2 , 0  0  0  ⟶ 4 × 8 _____
  ─────────────────
  □□,□□□
```

2 Show how to use partial products to multiply 5 × 1,643.

Vocabulary

multiplication an operation used to find the total number of items in equal-sized groups.

product the result of multiplication.

Solve.

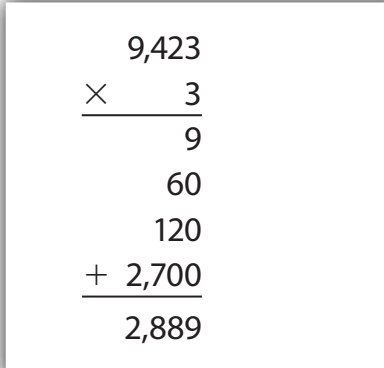**3** Write $4 \times 3{,}569$ in expanded form to show the place value of each digit. Then find the product.

_____

_____

_____

4 Lee earns $1,075 each month. How much does he earn in 6 months?

Show your work.

Solution: _____

5 Look at Callie's work for solving $3 \times 9{,}423$.

a. Explain what Callie did wrong.

_____

_____

_____

_____

_____

_____

_____

$$
\begin{array}{r}
9{,}423 \\
\times \quad\quad 3 \\
\hline
9 \\
60 \\
120 \\
+ \quad 2{,}700 \\
\hline
2{,}889
\end{array}
$$

b. What is the correct answer for $3 \times 9{,}423$?

_____

Name: _____

Multiply Two-Digit Numbers by Two-Digit Numbers

Study the example showing how to multiply a two-digit number by a two-digit number to solve a word problem. Then solve problems 1–6.

Example

Aaron's guitar lesson is 35 minutes a week.
He has been taking lessons for 12 weeks.
How many minutes has Aaron spent at lessons?

Use an area model to multiply 35 × 12.

	30 +	5
10	10 × 30 1 ten × 3 tens = 3 hundreds **300**	10 × 5 1 ten × 5 = 5 tens **50**
+ 2	2 × 30 2 × 3 tens = 6 tens **60**	2 × 5 = **10**

300 + 60 + 50 + 10 = 420 minutes
Aaron has spent 420 minutes at lessons.

1 Look at the example above. Use partial
products to multiply 35 × 12. Fill in the blanks.

```
      3  5
  ×   1  2
  ─────────
      1  0   ⟶ _____ ones × _____ ones
  □□         ⟶ 2 _____ × 3 _____
      5  0   ⟶ _____ ten × 5 _____
+ □□□        ⟶ _____ ten × 3 _____
  ─────────
      4  2  0
```

2 Show how to use an area model to multiply 71 × 48.

71 × 48 = _____ + _____ + _____ + _____ = _____

Solve.

3 Show how to use partial products to multiply 48 × 71.

$$48 \times 71 = \underline{\hspace{2cm}}$$

4 Tell whether each number sentence is *True* or *False*.

a. $18 \times 42 = (10 \times 40) + (10 \times 2) + (8 \times 40) + (8 \times 2)$ ☐ True ☐ False

b. $60 \times 15 = (6 \times 10) + (6 \times 5)$ ☐ True ☐ False

c. $37 \times 22 = (30 \times 20) + (30 \times 20) + (7 \times 20) + (7 \times 20)$ ☐ True ☐ False

d. $99 \times 11 = (1 \times 9) + (1 \times 90) + (10 \times 9) + (10 \times 90)$ ☐ True ☐ False

5 Mr. Greene is preparing 28 bags of materials for his art class. Each bag needs 40 glass tiles. How many glass tiles are needed?

Show your work.

Solution: _____

6 Stephanie has 6 classes a day at school. Each class is 52 minutes long. She goes to school 5 days a week. How much time does she spend in class each week? Show two different ways to solve this problem.

Show your work.

Solution: _____

Name: _____

Multiply Whole Numbers

Solve the problems.

1 One mile is 5,280 feet. How many feet are in 6 miles?

A 30,068   **C** 31,248

B 30,168   **D** 31,680

What would an area model for 6 x 5,280 look like?

2 Which of the following are equal to 420 × 3?

Circle the letter for all that apply.

A (3 × 400) + (3 × 20)

B 420 + 420 + 420

C (3 × 400) + (3 × 2)

D 1,260

How many hundreds, tens, and ones are in 420?

3 The bell on a clock tower rings every 15 minutes. If the bell has rung 24 times, how many minutes have passed?

A 220 minutes

B 342 minutes

C 360 minutes

D 380 minutes

Amber chose **A** as the correct answer. How did she get that answer?

_____

_____

_____

What are the partial products of 15 x 24?

Solve.

4 The multiplication problem 5 × 3,000 can be written in many different ways. One way is 5 × 3 × 1,000. Write 3 more ways.

_____

_____

_____

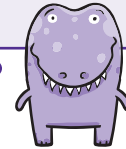> You can also write 3,000 as 3 × 10 × 100. What other ways can you think of?

5 A distance race is 42 kilometers. Kylie has completed 16 distance races. How many kilometers has she run?

Show your work.

> How many tens and ones are in each number?

Solution: _____

6 Fourth graders are taking a field trip. The cost is $15 for each student and $18 for each chaperone. There are 94 students and 16 chaperones on the field trip. What is the total cost for all students and chaperones?

Show your work.

> How much does it cost for all the students? All the chaperones?

Solution: _____