

Name _____

Multiply Three Factors

Essential Question How can you find the product of three factors?

UNLOCK the Problem REAL WORLD

You can use properties of multiplication to help make multiplication of three factors easier.

Sam ships 4 boxes of car model kits to Toy Mart. Each box contains 16 cartons, with 6 kits in each carton. How many car model kits does Sam ship?

Example Find $4 \times (16 \times 6)$.

STEP 1

Simplify the problem. Rewrite $4 \times (16 \times 6)$ as a product of two factors.

$$\begin{aligned}
 4 \times (16 \times 6) &= 4 \times (\underline{\quad} \times 16) && \text{Commutative Property} \\
 &= (4 \times \underline{\quad}) \times 16 && \text{Associative Property} \\
 &= \underline{\quad} \times 16
 \end{aligned}$$

So, $4 \times (16 \times 6) = 24 \times 16$.

So, Sam ships _____ car model kits.

STEP 2

Multiply.

$$\begin{array}{r}
 16 \\
 \times 24 \\
 \hline
 \boxed{} \leftarrow 4 \times 16 \\
 + \boxed{} \leftarrow 20 \times 16 \\
 \hline
 \boxed{} \leftarrow \text{Add.}
 \end{array}$$

- Underline what you are asked to find.
- Circle the numbers you will use to solve the problem.
- What operation can you use to solve the problem?

Try This!

$$\begin{aligned}
 (18 \times 8) \times 3 &= 18 \times (\underline{\quad} \times \underline{\quad}) && \text{Associative Property} \\
 &= 18 \times \underline{\quad} \\
 &= \underline{\quad}
 \end{aligned}$$

Math Talk Explain how using properties makes it easier to multiply three factors.

Share and Show



1. Find the product of $7 \times (6 \times 13)$.

STEP 1 Simplify the problem.

Rewrite $7 \times (6 \times 13)$ as a product of two factors.

$$\begin{aligned} 7 \times (6 \times 13) &= (\underline{\quad} \times \underline{\quad}) \times 13 \\ &\quad \text{Associative Property} \\ &= \underline{\quad} \times \underline{\quad} \end{aligned}$$

STEP 2 Multiply.

$$\begin{array}{r} 13 \\ \times 42 \\ \hline \end{array}$$

Find each product.

2. $3 \times (14 \times 3) = \underline{\quad}$ 3. $2 \times (4 \times 13) = \underline{\quad}$ 4. $(16 \times 6) \times 3 = \underline{\quad}$

On Your Own

Find each product.

5. $7 \times (17 \times 4) = \underline{\quad}$ 6. $(18 \times 4) \times 6 = \underline{\quad}$ 7. $9 \times (17 \times 5) = \underline{\quad}$
8. $(5 \times 26) \times 3 = \underline{\quad}$ 9. $9 \times (19 \times 2) = \underline{\quad}$ 10. $(21 \times 4) \times 6 = \underline{\quad}$

Problem Solving



11. There are 3 basketball leagues. Each league has 8 teams. Each team has 13 players. How many players are there in all 3 leagues?
- _____
12. There are 8 boxes of tennis balls. There are 24 cans of tennis balls in each box. There are 3 tennis balls in each can. How many tennis balls are there in all?
- _____