Interpreting Products of Whole Numbers

Apply the skill to decisions and designs

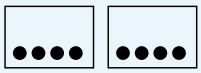
Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

Multiplication counts equal groups. In $3 \times 4 = 12$, 3 counts the groups and 4 counts the objects in each group: $4 + 4 + 4 = 12$. Use this groups-first convention on this page.

Worked example

The picture has equal groups. Write a multiplication equation and tell what each factor counts.



1. Count 2 boxes and 4 buttons in each box.
2. Add the groups: $4 + 4 = 8$.
3. The equation $2 \times 4 = 8$ counts all 8 buttons.
Answer: $2 \times 4 = 8$ buttons; 2 groups, 4 in each.

Practice Problems

Show your thinking.

1. A class needs 29 buttons. There are 5 packs with 6 each. Are there enough? How many extra?

2. A shelf has 4 rows of 7 buttons. Write an equation. Label the groups and the amount in each.

3. Draw 3 equal groups with 15 buttons altogether. How many go in each group?

4. Compare 2 bags of 9 buttons with 9 bags of 2. Same total? Same group size?

5. Four tables need 6 cups each. Plan A has 4 sealed packs of 6; plan B has 3 sealed packs of 8. Which plan gives one sealed pack to each table without repacking?

6. Draw two different equal-group plans for 20 buttons. One plan must use 4 groups; the other must use 2 groups. Label each product.

7. Three teams each carry 2 bags, with 7 balls in every bag. Find the number of equal bags first, then the balls.

8. Six art trays hold 4 brushes each. Add one brush to every tray. Does the total grow by 1 or by 6? Find the new total.

Answer Key

1. Yes; 30 buttons, with 1 extra.
2. $4 \times 7 = 28$ buttons.
3. 5 in each group; draw 3 groups of 5.
4. Same total, 18 buttons; group sizes 9 and 2 differ.
5. Plan A; both plans contain 24 cups.
6. $4 \times 5 = 20$ and $2 \times 10 = 20$.
7. 6 bags and 42 balls.
8. It grows by 6; new total 30 brushes.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The packs contain $5 \times 6 = 30$ buttons.

2. $30 - 29 = 1$, so the packs have 1 more than needed.

Problem 2

1. There are 4 rows, and each row has 7 buttons.

2. Multiply the equal rows: $4 \times 7 = 28$ buttons.

Problem 3

1. Share 15 into 3 groups: $15 \div 3 = 5$.

2. Check the drawing: $3 \times 5 = 15$ buttons.

Problem 4

1. First total: $2 \times 9 = 18$. Second: $9 \times 2 = 18$.

2. The first bag holds 9 and the second holds 2; equal totals do not mean equal groups.

Problem 5

1. Plan A: $4 \times 6 = 24$ cups in four groups of the required size 6.

2. Plan B: $3 \times 8 = 24$ cups too, but only three groups, each too large. Equal totals alone do not satisfy the plan.

Problem 6

1. For four groups, $20 \div 4 = 5$ buttons go in each group.

2. For two groups, $20 \div 2 = 10$ go in each. The totals match, but the group sizes differ.

Problem 7

1. The teams carry $3 \times 2 = 6$ bags in all.

2. Those six equal groups contain $6 \times 7 = 42$ balls.

Problem 8

1. At first, $6 \times 4 = 24$ brushes are in the trays.

2. One extra in each of six trays adds 6: $24 + 6 = 30$. Check $6 \times 5 = 30$.

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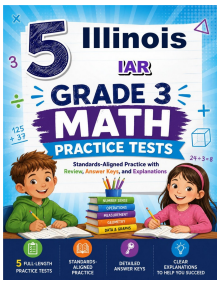

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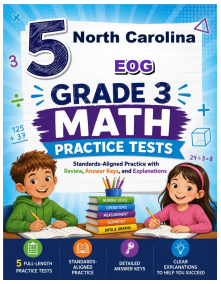

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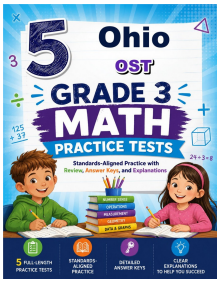

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