

Multiply Smart

Use number structure to solve grouped totals.

GRADE 5 • 5.MP.7

5.MP.7 "Look for and make use of structure."

NAME _____

DATE _____

SEE THE PARTS

Look for a factor you can break into friendly parts, such as tens and ones. Multiply each part, combine the partial products, and check that your total makes sense.

WORKED EXAMPLE

A youth art show places 17 drawings on each of 6 display boards. How many drawings are displayed?

1. Break 17 into $10 + 7$.
2. Multiply $10 \times 6 = 60$.
3. Multiply $7 \times 6 = 42$.
4. Add $60 + 42 = 102$.

Answer: 102 drawings

PRACTICE 6 problems

- 1** An esports club puts 24 controller labels in each of 8 crates. Use a break-apart strategy to find the total number of labels. Show your equation.

ANSWER _____

- 2** For a bake sale, students place 12 cookies on each of 15 trays. Use structure to find the total number of cookies. Show your equation.

ANSWER _____

- 3** A community garden has 9 rows with 36 seedlings in each row. Break apart a factor to find the total number of seedlings.

ANSWER _____

- 4** A theater club puts 14 programs into each of 25 welcome bags. Use a helpful structure to find the total number of programs.

ANSWER _____

- 5** A library puts 48 graphic novels on each of 7 shelves. Use a break-apart strategy to find the total number of graphic novels.

ANSWER _____

- 6** For field day, 16 teams each receive 18 wristbands. Use structure to find the total number of wristbands.

ANSWER _____

APPLY IT Show your work

- 1** A robotics club sets up 28 tables for a showcase. Each table needs 15 name tags. How many name tags are needed? Use structure to solve, then explain how you broke apart a factor.

WORK SPACE

ANSWER _____

- 2** A game designer packs 14 cards into each of 27 prize boxes. How many cards are packed? Use structure to solve, then check whether your answer is reasonable.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A supply drive has 31 bags with 22 cans in each bag. Another group has 22 bags with 31 cans in each bag. Without finding both products separately, find the total number of cans. Explain the structure you used.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	An esports club puts 24 controller labels in each of 8 crates. Use a break-apart strategy to find the total number of labels. Show your equation.	192 labels, because $8 \times (20 + 4) = 160 + 32 = 192$.
2	For a bake sale, students place 12 cookies on each of 15 trays. Use structure to find the total number of cookies. Show your equation.	180 cookies, because $15 \times (10 + 2) = 150 + 30 = 180$.
3	A community garden has 9 rows with 36 seedlings in each row. Break apart a factor to find the total number of seedlings.	324 seedlings, because $9 \times (30 + 6) = 270 + 54 = 324$.
4	A theater club puts 14 programs into each of 25 welcome bags. Use a helpful structure to find the total number of programs.	350 programs, because $25 \times (10 + 4) = 250 + 100 = 350$.
5	A library puts 48 graphic novels on each of 7 shelves. Use a break-apart strategy to find the total number of graphic novels.	336 graphic novels, because $7 \times (40 + 8) = 280 + 56 = 336$.
6	For field day, 16 teams each receive 18 wristbands. Use structure to find the total number of wristbands.	288 wristbands, because $16 \times (20 - 2) = 320 - 32 = 288$.

PART 2 • APPLY IT

- 420 name tags** Break 28 into $20 + 8$. Then $20 \times 15 = 300$ and $8 \times 15 = 120$, so $300 + 120 = 420$.
- 378 cards** Break 14 into $10 + 4$. Then $27 \times 10 = 270$ and $27 \times 4 = 108$, so $270 + 108 = 378$.

CHALLENGE

1,364 cans. The two products are equal because $31 \times 22 = 22 \times 31 = 682$, so the total is $2 \times 682 = 1,364$.

Accept any correct break-apart, compensation, or factor-order strategy that gives the stated total. Students may use different partial products if their equations and final answers are correct.