Solving Multi-Step Word Problems with Whole Numbers

Solving Multi-Step Word Problems with Whole Numbers: Apply, Compare, and Design

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

QUICK REVIEW

Name the quantity at each step and keep its unit. If 3 boxes hold 24 pencils each and 17 pencils are used, first find $3 \times 24 = 72$ pencils, then $72 - 17 = 55$ pencils. Parentheses can show the needed order: $(72 - 17) \div 5 = 11$ per group.

Worked example

Three boxes hold 28 pencils each. After 15 pencils are used, how many remain?

1. Total: $3 \times 28 = 84$ pencils.
2. Remaining: $84 - 15 = 69$ pencils.
3. $69 + 15 = 84$ checks the total.
Answer: 69 pencils.

Practice Problems

Show your thinking.

1. A school buys 20 packs of 26 pencils and gives away 73 pencils. How many remain?

2. Plan equal boxes for 4 sets of 45 books and 36 extra books. Each box holds at most 24. Find the minimum box count.

3. A club needs 320 badges. It has 86 and receives 9 packs of 24. How many more badges are needed?

4. A club may buy 16 packs of 15 markers or 12 packs of 20. It needs 225 markers. Compare spare markers for the two plans.

5. After 7 equal packs of stickers are opened and 18 stickers are used, 94 remain. How many stickers were in each pack?

6. Team A collects 15 boxes of 18 cans. Team B collects 12 boxes of 24 cans. Who collects more and by how many?

7. Design a transport plan for 192 students. Vans seat 12 and buses seat 48. Use exactly 2 vans and the least whole number of buses. Find unused seats.

8. A garden needs 144 plants in equal rows. It will have 8 rows with 12 plants each, plus 4 more equal rows. Find plants in each extra row.

Answer Key

1. 447 pencils.
2. 9 boxes.
3. 18 badges.
4. Both leave 15 spare markers.
5. 16 stickers per pack.
6. Team B; 18 cans more.
7. 4 buses plus 2 vans; 24 unused seats.
8. 12 plants per extra row.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Bought: $20 \times 26 = 520$ pencils.
2. Remaining: $520 - 73 = 447$ pencils.
3. Check: $447 + 73 = 520$ pencils.

Problem 2

1. Total: $4 \times 45 + 36 = 216$ books.
2. $216 \div 24 = 9$ boxes.
3. $9 \times 24 = 216$ uses every place with no extra box.

Problem 3

1. New badges: $9 \times 24 = 216$.
2. Total available: $86 + 216 = 302$.
3. Shortfall: $320 - 302 = 18$ badges.

Problem 4

1. First plan: $16 \times 15 = 240$ markers.
2. Second plan: $12 \times 20 = 240$ markers.
3. Each has $240 - 225 = 15$ spare.

Problem 5

1. Before use there were $94 + 18 = 112$ stickers.
2. $112 \div 7 = 16$ stickers in each pack.
3. $7 \times 16 - 18 = 94$ checks the story.

Problem 6

1. A: $15 \times 18 = 270$ cans.
2. B: $12 \times 24 = 288$ cans.
3. $288 - 270 = 18$ cans.

Problem 7

1. Vans seat $2 \times 12 = 24$; students remaining: $192 - 24 = 168$.
2. Three buses seat $3 \times 48 = 144$, too few; four seat 192.
3. Total spare seats: $192 + 24 - 192 = 24$.

Problem 8

1. First rows use $8 \times 12 = 96$ plants.
2. Remaining plants: $144 - 96 = 48$.
3. $48 \div 4 = 12$ per extra row.

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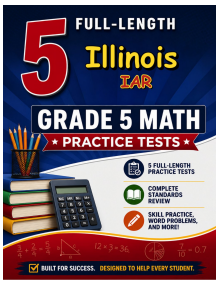

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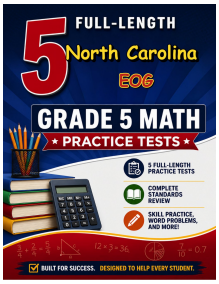

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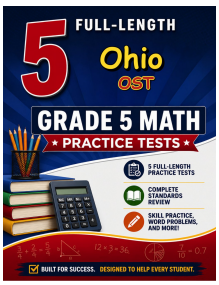

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