Solving Multi-Step Word Problems with Whole Numbers

Solving Multi-Step Word Problems with Whole Numbers: Find, Fix, and Work Backward

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 19 packs of 25 pencils and gives away 69 pencils. How many remain?

2. Find the starting number of marbles if 5 bags of 18 are added and then 27 are removed, leaving 143.

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

4. Find the unknown pack size: 8 packs and 14 loose counters make 158 counters total.

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

6. A student compares 13 groups of 22 with 11 groups of 26 and says the first must be larger because it has more groups. Test the claim.

7. A trip has 156 students and 12 adults. Each bus seats 40. Find the minimum buses and empty 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. 406 pencils.
2. 80 marbles.
3. 18 badges.
4. 18 counters per pack.
5. 16 stickers per pack.
6. Equal: both have 286.
7. 5 buses; 32 empty seats.
8. 12 plants per extra row.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Bought: $19 \times 25 = 475$ pencils.
2. Remaining: $475 - 69 = 406$ pencils.
3. Check: $406 + 69 = 475$ pencils.

Problem 2

1. Undo removal: $143 + 27 = 170$.
2. Undo the added bags: $170 - 5 \times 18 = 80$.
3. $80 + 90 - 27 = 143$ checks the starting value.

Problem 3

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

Problem 4

1. Packed counters: $158 - 14 = 144$.
2. $144 \div 8 = 18$ per pack.
3. $8 \times 18 + 14 = 158$ checks the total.

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. $13 \times 22 = 286$.
2. $11 \times 26 = 286$.
3. $286 - 286 = 0$; group count alone is insufficient.

Problem 7

1. Travelers: $156 + 12 = 168$.
2. $40 \times 4 = 160$ and $168 - 160 = 8$, so 5 buses are needed.
3. $5 \times 40 - 168 = 32$ empty seats.

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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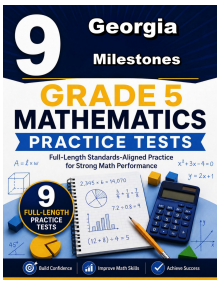

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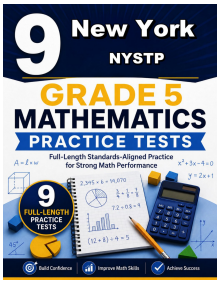

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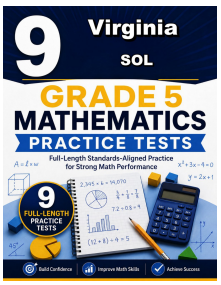

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