Solving Multi-Step Word Problems with Whole Numbers

Solving Multi-Step Word Problems with Whole Numbers: Models and Computation

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 18 packs of 24 pencils and gives away 65 pencils. How many remain?

2. A library has 6 shelves of 35 books and 42 loose books. All books go equally into 9 boxes. How many books per box?

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

4. Correct: Four buses with 48 seats and one van with 12 seats have $4 \times (48 + 12) = 240$ seats.

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. 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. 367 pencils.
2. 28 books.
3. 18 badges.
4. 204 seats.
5. 16 stickers per pack.
6. Team B; 18 cans more.
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: $18 \times 24 = 432$ pencils.
2. Remaining: $432 - 65 = 367$ pencils.
3. Check: $367 + 65 = 432$ pencils.

Problem 2

1. Shelved books: $6 \times 35 = 210$.
2. Total books: $210 + 42 = 252$.
3. Each box: $252 \div 9 = 28$ books.

Problem 3

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

Problem 4

1. Buses have $4 \times 48 = 192$ seats.
2. Only one van adds 12, so $192 + 12 = 204$ seats.
3. The incorrect expression counts 4 vans instead of 1.

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. 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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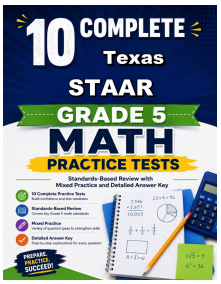

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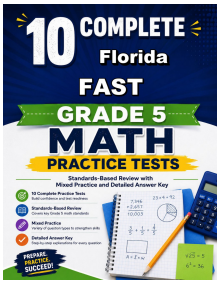

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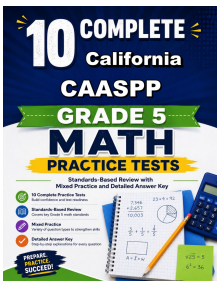

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