

SCHOOL OF MATH

CLASS 15

Two-Step Word Problems

With the Four Operations



Read • Plan • Solve • Check

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CLASS 15

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Two-Step Word Problems

With the Four Operations

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1. Understanding the Problem

Identify what you know and what you need to find.

A museum sells 4 tickets for **\$6 each**. A family pays with **\$30**.
How much change should they receive?



WHAT DO WE KNOW?

- 4 tickets
- \$6 per ticket
- \$30 paid

WHAT DO WE NEED TO FIND?

The change the family receives.

WHY TWO STEPS?

First find the total cost.
Then find the change.

$$4 \times \$6 = \$24 \rightarrow \$30 - \$24 = \$6 \rightarrow$$

Answer:
\$6 in change

Image 1 practice: Understanding the problem

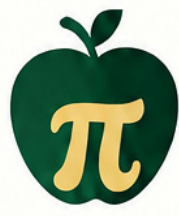
Q1. A family buys 3 planetarium tickets for \$7 each and pays with \$25. How much change should the family receive?

Q2. A school shop has 5 packs with 4 notebooks in each pack. It sells 7 notebooks. How many notebooks remain?

Q3. Thirty-six crayons are shared equally among 6 children. One child receives 3 extra crayons. How many crayons does that child have now?

Q4. A museum opens at 9 a.m. A class buys 5 tickets at \$4 each and pays with \$30. How much change does the class receive?

Q5. A reading corner has 32 books. A teacher adds 14 books, and children borrow 9. How many books are there now?



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2. Planning Two Steps

Decide what to find first. Use that answer in the next step.

A gardener has 3 trays with **8 flowers** in each tray.
She plants 10 flowers.
How many flowers are left?



1

STEP 1: FIND THE TOTAL

Multiply the number of trays by the flowers in each tray.

$$3 \times 8 = 24 \text{ flowers}$$



2

STEP 2: FIND WHAT IS LEFT

Subtract the flowers planted from the total.

$$24 - 10 = 14 \text{ flowers}$$

Answer:

14 flowers are left.

The answer to Step 1 becomes
information for Step 2.



Image 2 practice: Planning two steps

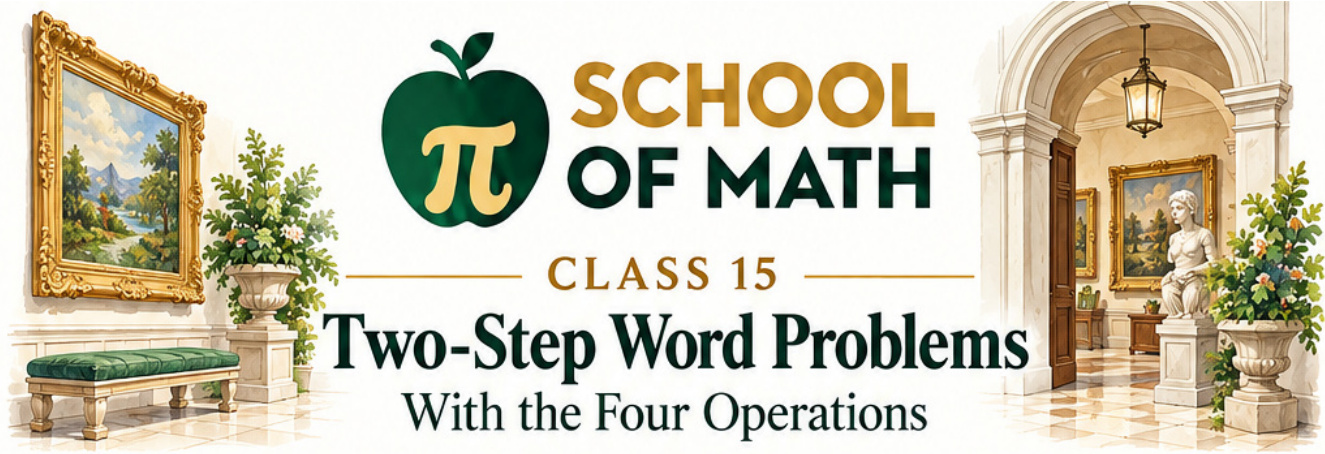
Q6. A gardener has 4 trays with 7 seedlings in each tray. She plants 9 seedlings. How many seedlings are left? State what you will find first.

Q7. A craft club has 18 red beads and 12 blue beads. It shares all the beads equally among 5 children. How many beads does each child receive?

Q8. A baker makes 48 rolls and sets aside 8 for a display. The rest go equally into 5 bags. How many rolls go into each bag?

Q9. Thirty-two bookmarks are shared equally among 4 tables. A teacher adds 5 more bookmarks to one table. How many bookmarks are on that table?

Q10. A school orders 6 boxes with 5 pencils in each box. It also receives 8 loose pencils. How many pencils arrive altogether?



3. Choosing the Operations

Think about what is happening in the story.

+ **ADD**

Combine quantities
or find a total.



$$12 \text{ visitors} + 5 \text{ visitors} = 17 \text{ visitors}$$

− **SUBTRACT**

Take away or find
the difference.



$$17 \text{ visitors} - 4 \text{ visitors} = 13 \text{ visitors}$$

× **MULTIPLY**

Find the total in
equal groups.



$$3 \text{ rows} \times 6 \text{ seats per row} = 18 \text{ seats}$$

÷ **DIVIDE**

Share equally or
find equal groups.



$$18 \text{ students} \div 3 \text{ equal groups} = 6 \text{ students per group}$$

PUT TWO OPERATIONS TOGETHER

A gallery has 4 rooms with 5 paintings
in each. It adds 3 more paintings.
How many paintings are there now?



Step 1: Multiply.
 $4 \times 5 = 20$ paintings.



Step 2: Add.
 $20 + 3 = 23$ paintings.

Answer:
23 paintings.



Choose operations from the situation, not just from key words.

Image 3 practice: Choosing the operations

Q11. A club has 16 members. Seven new members join and 5 members leave. How many members are there now? Name both operations.

Q12. Five tables each need 6 chairs. A teacher brings 4 extra chairs for guests. How many chairs are needed in all? Name both operations.

Q13. Forty-two cards are shared equally among 7 students. One student gives away 2 of her cards. How many cards does she keep? Name both operations.

Q14. A shop has 27 orange balloons and 18 green balloons. It puts all the balloons into bunches of 5. How many bunches can it make? Name both operations.

Q15. Liam has 4 bags with 6 marbles in each bag. Ava has 31 marbles. How many more marbles does Ava have than Liam?



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4. Addition and Subtraction

Combine quantities, then find what remains.

A library has **28** books on a cart.
A librarian adds **15** more books.
Students borrow **19** books.
How many books remain
on the cart?



STEP 1: ADD THE BOOKS

Find the total after the librarian adds more.

$$28 + 15 = 43 \text{ books}$$



STEP 2: SUBTRACT THE BOOKS BORROWED

Use the total from Step 1.

$$43 - 19 = 24 \text{ books}$$



Answer:

24 books remain on the cart.

CHECK YOUR ANSWER



Undo the steps
in reverse order.

$$24 + 19 = 43$$

$$43 - 15 = 28$$

Image 4 practice: Addition and subtraction

Q16. A library cart has 37 books. A librarian adds 26 books, and students borrow 18. How many books remain on the cart?

Q17. A school bus has 45 passengers. Seventeen get off, then 9 get on. How many passengers are now on the bus?

Q18. A shop has 68 postcards, sells 24, and receives 15 more. How many postcards does it have now?

Q19. A reading challenge begins with 86 points. A team earns 27 points and then spends 35 points on a reward. How many points does the team have left?

Q20. A class collects 125 cans on Monday and 48 on Tuesday. It sends 67 cans for recycling. How many cans are waiting to be sent?



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5. Multiplication, Then Addition or Subtraction

Find the total in equal groups. Then adjust the total.



MULTIPLY, THEN ADD

A concert hall has 6 rows with 8 seats in each row. Staff add 5 extra chairs. How many seats are available?

Step 1: $6 \times 8 = 48$ seats

Step 2: $48 + 5 = 53$ seats



Answer:

53 seats are available.



MULTIPLY, THEN SUBTRACT

A music school has 4 boxes with 9 tambourines in each box. Students take 7 tambourines. How many tambourines remain?

Step 1: $4 \times 9 = 36$ tambourines

Step 2: $36 - 7 = 29$ tambourines



Answer:

29 tambourines remain.

KEY IDEA: TWO-STEP WORD PROBLEMS

Equal groups
→ **Multiply**

Extras
→ **Add**

Taken away
→ **Subtract**

Image 5 practice: Multiply, then add or subtract

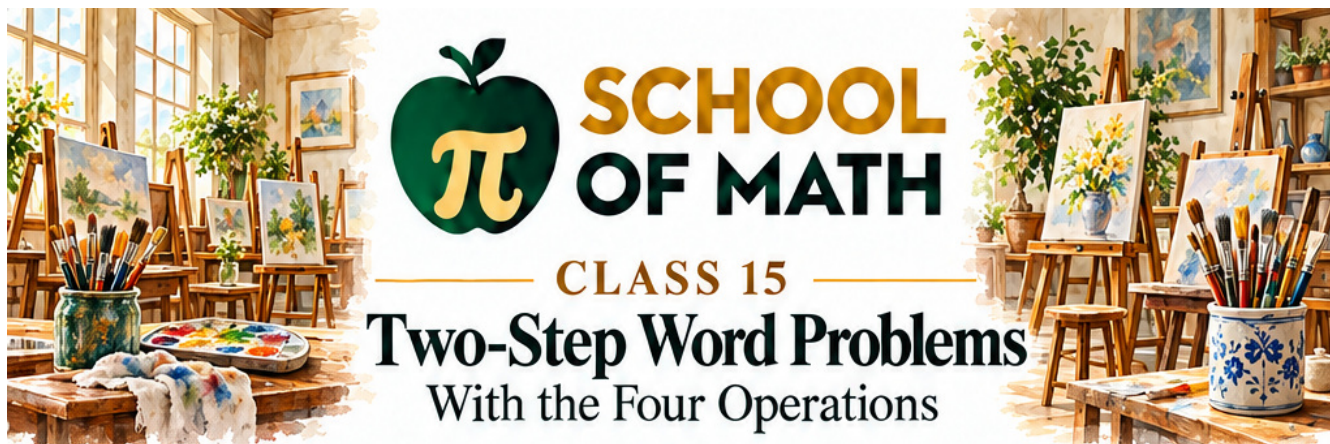
Q21. A music room has 7 rows with 6 chairs in each row. Staff add 9 extra chairs altogether. How many chairs are there now?

Q22. A coach has 5 boxes with 8 tennis balls in each box. Students take 13 balls to practice. How many balls remain?

Q23. A shop receives 8 packs with 7 stickers in each pack and 6 loose stickers. How many stickers arrive?

Q24. A family buys 4 art kits costing \$9 each and pays with \$50. How much change should it receive?

Q25. A garden has 9 rows with 8 plants in each row. Gardeners move 17 plants to another garden. How many plants remain?



Two-Step Word Problems With the Four Operations

6. Division, Then Addition or Subtraction

Share equally. Then adjust one share.



DIVIDE, THEN ADD

An art teacher shares 24 paintbrushes equally among 4 tables. She puts 2 extra paintbrushes on one table.
How many paintbrushes are on that table now?

Step 1: $24 \div 4 = 6$ paintbrushes per table

Step 2: $6 + 2 = 8$ paintbrushes

Answer:

8 paintbrushes are on that table.



DIVIDE, THEN SUBTRACT

A pottery teacher shares 30 clay tools equally among 5 students. One student returns 2 tools.
How many tools does that student keep?

Step 1: $30 \div 5 = 6$ tools per student

Step 2: $6 - 2 = 4$ tools

Answer:

That student keeps **4** tools.



KEY IDEA: TWO-STEP WORD PROBLEMS

Equal sharing
→ **Divide**

Added to one share
→ **Add**

Removed from one share
→ **Subtract**

Image 6 practice: Divide, then adjust one share

Q26. Forty-eight paintbrushes are shared equally among 6 tables. One table receives 3 extra brushes. How many brushes are on that table now?

Q27. Forty-five clay tools are shared equally among 5 students. One student returns 4 tools. How many tools does that student keep?

Q28. Fifty-six beads are shared equally among 7 children. One child finds 6 more beads. How many beads does that child have?

Q29. Sixty-three sheets of paper are shared equally among 9 groups. One group uses 2 sheets. How many unused sheets does that group have?

Q30. Eighty-one counters are shared equally among 9 students. One student receives 7 bonus counters. How many counters does that student have now?

Homework review: R1–R5

R1. A family buys 5 aquarium tickets at \$7 each and pays with \$40. What must you find before the change, and how much change should the family receive?

R2. A gardener has 6 trays with 4 seedlings in each tray and plants 11 seedlings. State a two-step plan and find how many are left.

R3. A club collects 21 red counters and 15 yellow counters. It shares them equally among 6 children. Name the operations and find each child's share.

R4. A librarian starts with 54 books, adds 17 books, and lends out 26. How many books remain?

R5. A music room has 8 rows with 5 chairs in each row. Staff bring in 7 extra chairs altogether. How many chairs are available?

Homework review: R6

R6. Forty-nine pencils are shared equally among 7 students. One student receives 5 extra pencils. How many pencils does that student have?

Homework word problems: W1–W5

W1. A class has 23 markers. A teacher brings 12 more, and 8 markers run out of ink. How many markers still work?

W2. A train has 58 passengers. Nineteen passengers get off, and 26 new passengers get on. How many passengers are on the train now?

W3. A bakery fills 4 trays with 6 muffins each. It sells 9 muffins. How many muffins remain?

W4. An art club fills 5 tables with 7 children at each table. Three more children arrive. How many children are there altogether?

W5. A science club has 6 boxes with 9 magnets in each box. A teacher brings 7 extra magnets altogether. How many magnets does the club have now?

Homework word problems: W6–W10

W6. Thirty-five stickers are shared equally among 5 friends. One friend gets 4 extra stickers. How many stickers does that friend have?

W7. Fifty-four crackers are shared equally among 6 children. One child eats 3 of her crackers. How many crackers does she have left?

W8. A family buys 6 sketchbooks for \$7 each and pays with \$50. How much change does it receive?

W9. A class collects 24 cans in the morning and 32 in the afternoon. It packs all the cans into boxes of 8. How many boxes does it fill?

W10. A bakery has 72 rolls. It saves 16 for a school lunch and puts the rest equally into 7 bags. How many rolls go in each bag?

Homework word problems: W11–W14

W11. Maya has 7 packs with 8 cards in each pack. Noah has 68 cards. How many more cards does Noah have than Maya?

W12. Three class projects earn 18 points each. The class needs 80 points for a reward. How many more points does it need?

W13. A school buys 8 boxes with 12 pencils in each box. It shares all the pencils equally among 6 classrooms. How many pencils does each classroom receive?

W14. A teacher gives the same number of beads to each of 8 children. Each child gets 9 beads, and 14 beads remain in the box. How many beads did the teacher have before sharing?