LESSON MAKER PRO

Two Clues, One Answer

Use two equations to solve real-world puzzles.

GRADE 8 · 8.AT.B.5.d

8.AT.B.5.d "Model and solve contextual problems using systems of two linear equations."

NAME _____ DATE _____

MAKE A SYSTEM

Choose a variable for each unknown. Write one equation for each clue, then solve both equations together. Check that your answer fits both clues.

WORKED EXAMPLE

A group buys 8 tickets for $56. How many adult and child tickets do they buy?

TICKET PRICES

Ticket	Price
Adult	$9
Child	$5

1. Let a = adult tickets and c = child tickets. a + c = 8; 9a + 5c = 56.
2. Substitute c = 8 - a: 9a + 5(8 - a) = 56.
3. 4a + 40 = 56, so a = 4.
4. c = 8 - 4 = 4.

Answer: 4 adult tickets and 4 child tickets

PRACTICE 4 problems

1 A club sells 12 pins. Small pins cost $2 and large pins cost $3. Sales total $29. Write a system and find each count.

ANSWER _____

2 Plan A costs $3 plus $2 per song. Plan B costs $13 plus $1 per song. Write a system. When do they cost the same, and what is the cost?

ANSWER _____

3 Two teams score 31 points together. Blue scores 7 more than Red. Write a system and find each score.

ANSWER _____

4 A 2-mile ride costs $11. A 6-mile ride costs $23. Each price includes the same start fee and a cost per mile. Write a system and find both costs.

ANSWER _____

APPLY IT Show your work

1 A school concert sells student tickets for $6 and adult tickets for $10. It sells 38 tickets for $284. Write a system and find each count.

WORK SPACE

ANSWER _____

2 At a snack stand, 2 smoothies and 3 pretzels cost $21. Three smoothies and 2 pretzels cost $24. Write a system and find each price.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A club sells 30 tickets for $262. Student tickets cost $7 and adult tickets cost $11. A classmate claims it sold 16 student and 14 adult tickets. Write a system, check the claim, and find the actual counts.

WORK SPACE AND ANSWER

ANSWER KEY

Two Clues, One Answer

GRADE 8 · 8.AT.B.5.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A club sells 12 pins. Small pins cost $2 and large pins cost $3. Sales total $29. Write a system and find each count.	**s + l = 12; 2s + 3l = 29. 7 small pins and 5 large pins.**
2	Plan A costs $3 plus $2 per song. Plan B costs $13 plus $1 per song. Write a system. When do they cost the same, and what is the cost?	**a = 3 + 2x; b = 13 + x. Both cost $23 for 10 songs.**
3	Two teams score 31 points together. Blue scores 7 more than Red. Write a system and find each score.	**b + r = 31; b = r + 7. Blue scores 19 points; Red scores 12 points.**
4	A 2-mile ride costs $11. A 6-mile ride costs $23. Each price includes the same start fee and a cost per mile. Write a system and find both costs.	**f + 2m = 11; f + 6m = 23. Start fee: $5; cost per mile: $3.**

PART 2 · APPLY IT

1. **s + a = 38; 6s + 10a = 284. 24 student tickets and 14 adult tickets.** Substitute s = 38 - a into the sales equation. Then 228 + 4a = 284, so a = 14 and s = 24.
2. **2s + 3p = 21; 3s + 2p = 24. A smoothie costs $6; a pretzel costs $3.** Eliminating s gives 5p = 15, so p = 3. Substitute to find s = 6.

CHALLENGE

s + a = 30; 7s + 11a = 262. The claim is false because those tickets would cost $266. The club sold 17 student tickets and 13 adult tickets.

Accept any equivalent system with clearly defined variables. For the challenge, a valid check must use both the ticket count and the sales total.