LESSON MAKER PRO

Equation Decoder

Turn situation clues into two-step equations.

GRADE 7 · 7.PFA.3.d

7.PFA.3.d "Write a two-step linear equation in one variable to represent a verbal situation, including those in context."

NAME _____ DATE _____

BUILD THE EQUATION

Let x stand for the unknown amount. Use multiplication for an amount that repeats, then add or subtract a starting amount, fee, or change. Set the expression equal to the total or amount left.

WORKED EXAMPLE

A game pass has a $12 fee plus $7 for each visit. The total cost is $47. Write a two-step equation.

1. Let x = the number of visits.
2. The visit cost is 7x.
3. Add the fee: 7x + 12.
4. Set the cost equal to the total: 7x + 12 = 47.

Answer: 7x + 12 = 47

PRACTICE 6 problems

1 You begin with 7 stickers and earn 5 stickers for each chore. You have 32 stickers. Write a two-step equation. Let x = the number of chores.

ANSWER _____

2 A park charges $6 to enter and $2 for each ride. Your total cost is $18. Write a two-step equation. Let x = the number of rides.

ANSWER _____

3 A tank began with 73 liters of water. It drains 8 liters each minute and has 41 liters left. Write a two-step equation. Let x = the number of minutes.

ANSWER _____

4 You have a $54 balance. After making x payments of $9 each, your balance is $18. Write a two-step equation.

ANSWER _____

5 Each notebook costs $4. A coupon takes $5 off your purchase, and you pay $19. Write a two-step equation. Let x = the number of notebooks.

ANSWER _____

6 A team scores 11 points before earning 6 points in each round. The team has 35 points. Write a two-step equation. Let x = the number of rounds.

ANSWER _____

APPLY IT Show your work

1 The school gaming club rents a room for $8 and pays $5 for each hour it uses the room. The club spends $38. Write a two-step equation. Let x = the number of hours.

WORK SPACE

ANSWER _____

2 You have $64 on a gift card. You buy x comic books for $6 each and have $22 left. Write a two-step equation.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Mina says, "I had 50 points, lost 4 points each round, and ended with 26 points," can be represented by 4x + 50 = 26. Is Mina correct? Write the correct equation and explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Equation Decoder

GRADE 7 · 7.PFA.3.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	You begin with 7 stickers and earn 5 stickers for each chore. You have 32 stickers. Write a two-step equation. Let x = the number of chores.	**5x + 7 = 32**
2	A park charges $6 to enter and $2 for each ride. Your total cost is $18. Write a two-step equation. Let x = the number of rides.	**2x + 6 = 18**
3	A tank began with 73 liters of water. It drains 8 liters each minute and has 41 liters left. Write a two-step equation. Let x = the number of minutes.	**73 - 8x = 41**
4	You have a $54 balance. After making x payments of $9 each, your balance is $18. Write a two-step equation.	**54 - 9x = 18**
5	Each notebook costs $4. A coupon takes $5 off your purchase, and you pay $19. Write a two-step equation. Let x = the number of notebooks.	**4x - 5 = 19**
6	A team scores 11 points before earning 6 points in each round. The team has 35 points. Write a two-step equation. Let x = the number of rounds.	**6x + 11 = 35**

PART 2 · APPLY IT

1. **5x + 8 = 38** The hourly cost is 5x. Add the $8 room fee and set the expression equal to $38.
2. **64 - 6x = 22** The comic books cost 6x. Subtract that cost from the starting balance of $64 to show the $22 remaining.

CHALLENGE

No. 50 - 4x = 26, because 4 points are lost each round, so 4x is subtracted from 50.

Accept equivalent equations with the two sides reversed or terms reordered, such as 32 = 5x + 7. Students should define x consistently as the unknown quantity named in each situation.