LESSON MAKER PRO

Solve the Story

Find x, then explain what it means in the situation.

GRADE 8 · 8.PFA.4.f

8.PFA.4.f "Interpret algebraic solutions in context to linear equations in one variable."

NAME _____ DATE _____

SOLUTIONS HAVE MEANING

A solution tells the value of x that makes an equation true. After you solve, use the context to name what x counts, such as weeks, items, or hours.

WORKED EXAMPLE

A robotics club has 8 kits and buys 9 kits each month. It has 44 kits after x months. Solve 8 + 9x = 44. What does x mean?

1. 8 + 9x = 44
2. 9x = 36
3. x = 4
4. Because x counts months, the club buys kits for 4 months.

Answer: x = 4, so the time is 4 months.

PRACTICE 6 problems

1 A movie rental account has a $15 starting credit. You add $2 each week until it has $25. Solve 15 + 2x = 25. What does x mean?

ANSWER _____

2 A car-wash fundraiser begins with $11. Each wash adds $7. The total is $32. Solve 11 + 7x = 32. What does x mean?

ANSWER _____

3 A gamer has $42 in a game store wallet and spends $5 each week. The balance becomes $17. Solve 42 - 5x = 17. What does x mean?

ANSWER _____

4 A club pays $21 for supply packs that each cost $7. Solve 7x = 21. What does x mean?

ANSWER _____

5 Student tickets cost $13 each, and there is a $10 service fee. The total is $49. Solve 13x + 10 = 49. What does x mean?

ANSWER _____

6 A temperature starts at 31 degrees and drops 2 degrees each hour. It reaches 21 degrees. Solve 31 - 2x = 21. What does x mean?

ANSWER _____

APPLY IT Show your work

1 Maya wants a $48 game expansion. She has saved $13 and earns $7 each week by helping at a pet shelter. How many weeks must she work to have enough money?

WORK SPACE

ANSWER _____

2 The drama club sells bracelets for $5 each. It pays a $20 booth fee and wants to earn a profit of $55. How many bracelets must the club sell?

WORK SPACE

ANSWER _____

CHALLENGE One step up

One music app plan costs $3 per downloaded song plus an $18 membership fee. Another plan costs $6 per downloaded song with no membership fee. At how many downloaded songs do the plans cost the same? Explain what your solution means.

WORK SPACE AND ANSWER

ANSWER KEY

Solve the Story

GRADE 8 · 8.PFA.4.f

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A movie rental account has a $15 starting credit. You add $2 each week until it has $25. Solve 15 + 2x = 25. What does x mean?	**x = 5, so you add money for 5 weeks.**
2	A car-wash fundraiser begins with $11. Each wash adds $7. The total is $32. Solve 11 + 7x = 32. What does x mean?	**x = 3, so 3 cars are washed.**
3	A gamer has $42 in a game store wallet and spends $5 each week. The balance becomes $17. Solve 42 - 5x = 17. What does x mean?	**x = 5, so the gamer spends money for 5 weeks.**
4	A club pays $21 for supply packs that each cost $7. Solve 7x = 21. What does x mean?	**x = 3, so the club buys 3 supply packs.**
5	Student tickets cost $13 each, and there is a $10 service fee. The total is $49. Solve 13x + 10 = 49. What does x mean?	**x = 3, so 3 student tickets are bought.**
6	A temperature starts at 31 degrees and drops 2 degrees each hour. It reaches 21 degrees. Solve 31 - 2x = 21. What does x mean?	**x = 5, so 5 hours pass.**

PART 2 · APPLY IT

1. **5 weeks** Model the situation with 13 + 7x = 48. Subtract 13 and divide by 7 to get x = 5, so Maya must work for 5 weeks.
2. **15 bracelets** Model the profit with 5x - 20 = 55. Add 20 and divide by 5 to get x = 15, so the club must sell 15 bracelets.

CHALLENGE

x = 6. The plans cost the same when 6 songs are downloaded.

Accept equivalent statements that clearly identify what x represents in each context. For the challenge, students may write an equivalent equation such as 3x + 18 = 6x and must connect x = 6 to downloaded songs.