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

CHALLENGE

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.

_____

_____

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.