LESSON MAKER PRO

Equation Balance Lab

Use models and inverse operations to find x.

GRADE 6 · 6.PFA.3.b

6.PFA.3.b "Represent and solve one-step linear equations in one variable, using a variety of concrete manipulatives and pictorial representations (e.g., colored chips, algebra tiles, weights on a balance scale)."

NAME _____ DATE _____

KEEP BOTH SIDES EQUAL

An equation is balanced because both sides have the same value. To get x alone, use the opposite operation on both sides. You can use a number line or a tape model to show the equal amounts.

WORKED EXAMPLE

Solve x + 7 = 19.

1. Start with x + 7 = 19.
2. Subtract 7 from both sides.
3. x = 19 - 7.
4. x = 12

Answer: x = 12

PRACTICE 6 problems

1 The number line models x + 9 = 24. Solve the equation.



ANSWER _____

2 The number line models x - 8 = 13. Solve the equation.



ANSWER _____

3 Solve 6x = 42.

ANSWER _____

4 Solve x / 5 = 9.

ANSWER _____

5 Solve x + (-6) = 11.

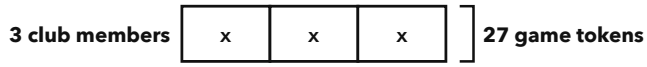
ANSWER _____

6 Solve -4x = 28.

ANSWER _____

APPLY IT Show your work

1 Three members of an esports club share 27 game tokens equally. Each member gets x tokens. Write and solve an equation.



ANSWER _____

2 After giving 14 stickers to friends, Malia has 23 stickers left. She started with x stickers. Write and solve an equation.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve x / -2 = -10. Then explain which operation you used to isolate x.

WORK SPACE AND ANSWER

ANSWER KEY # Equation Balance Lab

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The number line models x + 9 = 24. Solve the equation.	**x = 15**
2	The number line models x - 8 = 13. Solve the equation.	**x = 21**
3	Solve 6x = 42.	**x = 7**
4	Solve x / 5 = 9.	**x = 45**
5	Solve x + (-6) = 11.	**x = 17**
6	Solve -4x = 28.	**x = -7**

PART 2 · APPLY IT

1. **3x = 27; x = 9** The three equal parts represent 3x, and their total is 27. Divide both sides by 3.
2. **x - 14 = 23; x = 37** Subtracting 14 from the starting number leaves 23. Add 14 to both sides.

CHALLENGE

x = 20. Multiply both sides by -2 to isolate x.

Accept equivalent equation forms for the word problems, as long as they correctly represent the situation and give the stated value of x. For the challenge, accept any clear explanation that says to multiply both sides by -2.