

Balance It Out

Write, solve, and check one-step equations.

GRADE 6 • 6.PFA.3

6.PFA.3 "The student will write and solve one-step linear equations in one variable, including contextual problems that require the solution of a one-step linear equation in one variable..."

NAME _____

DATE _____

KEEP BOTH SIDES EQUAL

An equation has an equals sign. In $13x = 65$, x is the variable, 13 is the coefficient, and $13x$ is both a term and an expression. Use the inverse operation on both sides of an equation so the two sides stay equal.

WORKED EXAMPLE

Solve: $7x = 56$

1. $7x = 56$

2. Divide both sides by 7.

3. $x = 8$

Answer: $x = 8$

PRACTICE 6 problems

1 Solve: $x + 9 = 21$

ANSWER _____

2 Solve: $x - 14 = 10$

ANSWER _____

3 Solve: $5x = 45$

ANSWER _____

4 Solve: $(1/12)x = 3$

ANSWER _____

5 Solve: $-3x = 18$

ANSWER _____

6 A balanced scale has 4 x -tiles on the left and 36 unit tiles on the right. Write an equation and solve it.

ANSWER _____

APPLY IT Show your work

- 1** A player has 34 game coins after earning 15 coins. Write and solve an equation to find how many coins the player had before earning the coins.

WORK SPACE

ANSWER _____

- 2** A club buys 6 identical game passes for \$54. Write and solve an equation to find the cost of one pass.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

On a balanced scale, one x-tile and 18 unit tiles are on the left. There are 46 unit tiles on the right. Solve for x and explain what you would remove from each side of the scale.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $x + 9 = 21$	$x = 12$
2	Solve: $x - 14 = 10$	$x = 24$
3	Solve: $5x = 45$	$x = 9$
4	Solve: $(1/12)x = 3$	$x = 36$
5	Solve: $-3x = 18$	$x = -6$
6	A balanced scale has 4 x-tiles on the left and 36 unit tiles on the right. Write an equation and solve it.	$4x = 36$; $x = 9$

PART 2 • APPLY IT

1. **$x + 15 = 34$; $x = 19$** Let x be the number of coins the player had before earning coins. Subtract 15 from both sides to get $x = 19$.
2. **$6x = 54$; $x = 9$** Let x be the cost of one game pass. Divide both sides by 6 to get $x = 9$.

CHALLENGE

$x = 28$; remove 18 unit tiles from each side.

Accept equivalent equation forms that correctly represent each situation. For the challenge, accept explanations that state subtracting 18 from both sides keeps the scale balanced.