LESSON MAKER PRO

Balance It Out

Use inverse operations to solve for x.

GRADE 6 · 6.PFA.3.c

6.PFA.3.c "Apply properties of real numbers and properties of equality to solve a one-step equation in one variable. Coefficients are limited to integers and unit fractions. Numeric terms are limited to integers."

NAME _____ DATE _____

KEEP BOTH SIDES EQUAL

To undo addition or subtraction, use the opposite operation on both sides. To undo multiplication by a number or a unit fraction, multiply both sides by its reciprocal. Do the same operation to each side so the equation stays balanced.

WORKED EXAMPLE

Solve: $x/6 = 7$

1. Multiply both sides by 6.
2. $6(x/6) = 7 \cdot 6$
3. $x = 42$

Answer: x = 42

PRACTICE 6 problems

1 Solve: x + 9 = -4

ANSWER _____

2 Solve: x - 8 = 11

ANSWER _____

3 Solve: -4x = 20

ANSWER _____

4 Solve: x/4 = -5

ANSWER _____

5 Solve: (1/3)x = 12

ANSWER _____

6 Solve: 5x = -25

ANSWER _____

APPLY IT Show your work

1 Jayden has x coins in a game. He uses 15 coins to unlock a character and has 28 coins left. How many coins did Jayden have at first?

WORK SPACE

ANSWER _____

2 Mina reads one-fourth of an x-page graphic novel during study hall. She reads 9 pages. How many pages are in the graphic novel?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve: (-1/8)x = 3. Explain which number you multiply both sides by.

WORK SPACE AND ANSWER

ANSWER KEY

Balance It Out

GRADE 6 · 6.PFA.3.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: x + 9 = -4	**x = -13**
2	Solve: x - 8 = 11	**x = 19**
3	Solve: -4x = 20	**x = -5**
4	Solve: x/4 = -5	**x = -20**
5	Solve: (1/3)x = 12	**x = 36**
6	Solve: 5x = -25	**x = -5**

PART 2 · APPLY IT

1. **43 coins** Write x - 15 = 28. Add 15 to both sides to get x = 43.
2. **36 pages** Write x/4 = 9. Multiply both sides by 4 to get x = 36.

CHALLENGE

x = -24; multiply both sides by -8.

Accept equivalent multiplication notation, such as x/4 or (1/4)x. Students may show inverse operations in a different order if both sides of the equation are treated equally.