

Equation Escape

Use inverse operations to find the unknown.

GRADE 7 • 7.PFA.3.f

7.PFA.3.f "Solve problems in context that require the solution of a two-step linear equation."

NAME _____

DATE _____

UNDO OPERATIONS

To solve a two-step equation, undo the addition or subtraction first. Then undo the multiplication or division to get x alone. Check by putting your value back into the original equation.

WORKED EXAMPLE

Solve: $9x + 14 = 68$

1. Subtract 14 from both sides: $9x = 54$
2. Divide both sides by 9: $x = 6$
3. Check: $9(6) + 14 = 68$

Answer: $x = 6$

PRACTICE 6 problems

1 Solve: $3x + 5 = 17$

ANSWER _____

2 Solve: $5x - 8 = 27$

ANSWER _____

3 Solve: $x/4 + 2 = 7$

ANSWER _____

4 Solve: $7x + 11 = 46$

ANSWER _____

5 Solve: $2x - 13 = 19$

ANSWER _____

6 Solve: $x/3 - 4 = 5$

ANSWER _____

APPLY IT Show your work

- 1** A music app charges a \$5 starting fee and \$4 for each song pack. Your total charge is \$33. How many song packs did you buy?

WORK SPACE

ANSWER _____

- 2** An arcade charges a \$7 entry fee plus \$3 for each game token. You pay \$37 total. How many game tokens did you buy?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Solve: $4(x - 2) = 32$. Show the steps you use.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $3x + 5 = 17$	$x = 4$
2	Solve: $5x - 8 = 27$	$x = 7$
3	Solve: $x/4 + 2 = 7$	$x = 20$
4	Solve: $7x + 11 = 46$	$x = 5$
5	Solve: $2x - 13 = 19$	$x = 16$
6	Solve: $x/3 - 4 = 5$	$x = 27$

PART 2 • APPLY IT

- 7 song packs** Write $4x + 5 = 33$. Subtract 5, then divide by 4 to get $x = 7$.
- 10 game tokens** Write $3x + 7 = 37$. Subtract 7, then divide by 3 to get $x = 10$.

CHALLENGE

 $x = 10$

Accept correct inverse-operation work and equivalent equation forms. For the challenge, students may divide by 4 first, then add 2.