

Equation Quest

Use inverse operations to find the unknown.

GRADE 6 • 6.EE.B.7

CCSS.Math.Content.6.EE.B.7 "Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers."

NAME _____

DATE _____

UNDO THE OPERATION

For $x + p = q$, subtract p from both sides to find x . For $px = q$, divide both sides by p to find x . Check your answer by replacing x in the original equation.

WORKED EXAMPLE

Solve: $x + 2.7 = 8.9$

1. Subtract 2.7 from both sides.

2. $x = 8.9 - 2.7$

3. $x = 6.2$

Answer: $x = 6.2$

PRACTICE 6 problems

1 Solve: $x + 5 = 13$

ANSWER _____

2 Solve: $3x = 21$

ANSWER _____

3 Solve: $x + 1/4 = 3/4$

ANSWER _____

4 Solve: $(2/5)x = 4$

ANSWER _____

5 Solve: $x + 0.6 = 1.5$

ANSWER _____

6 Solve: $1.2x = 3.6$

ANSWER _____

APPLY IT Show your work

- 1** Maya has \$6.75 saved for a game card that costs \$18. Let x be the amount of money she still needs. Write and solve an equation to find x .

WORK SPACE

ANSWER _____

- 2** A robotics club buys x pounds of trail mix for a snack table. Trail mix costs $\$3/4$ per pound, and the club spends \$6. Write and solve an equation to find x .

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student council has saved \$30, which is $5/6$ of its fundraising goal, x . Write and solve an equation. Explain why you divide by $5/6$.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $x + 5 = 13$	$x = 8$
2	Solve: $3x = 21$	$x = 7$
3	Solve: $x + 1/4 = 3/4$	$x = 1/2$
4	Solve: $(2/5)x = 4$	$x = 10$
5	Solve: $x + 0.6 = 1.5$	$x = 0.9$
6	Solve: $1.2x = 3.6$	$x = 3$

PART 2 • APPLY IT

- $x + 6.75 = 18$; $x = 11.25$. Maya needs \$11.25.** Write $x + 6.75 = 18$ because Maya's saved money plus the amount needed equals the cost. Subtract 6.75 from 18.
- $(3/4)x = 6$; $x = 8$. The club buys 8 pounds.** Multiply the cost per pound by the number of pounds: $(3/4)x = 6$. Divide 6 by $3/4$ to get 8.

CHALLENGE

$(5/6)x = 30$; $x = 36$. Divide by $5/6$ because \$30 is $5/6$ of the total goal.

Accept equivalent rational forms, such as 0.5 for $1/2$ and 0.9 for $9/10$. For word problems and the challenge, accept a correct equation, solution, and appropriate unit or context statement.