

Equation Quest

Write and solve equations with rational numbers.

GRADE 6 • 6.PAR.7.3

6.PAR.7.3 "Solve problems by writing and solving equations of the form $x + p = q$, $px = q$ and $x/p = q$ for cases in which p , q and x are all nonnegative rational numbers."

NAME _____

DATE _____

USE INVERSE OPERATIONS

For $x + p = q$, subtract p from q . For $px = q$, divide q by p , and for $x/p = q$, multiply q by p .

WORKED EXAMPLE

Solve: $x + 5/8 = 1\ 7/8$

1. Subtract $5/8$ from both sides.
2. $x = 1\ 7/8 - 5/8$
3. $x = 1\ 1/4$

Answer: $x = 1\ 1/4$

PRACTICE 6 problems

1 Solve: $x + 2/3 = 5/6$

ANSWER _____

2 Solve: $x + 1.4 = 3.9$

ANSWER _____

3 Solve: $(3/4)x = 6$

ANSWER _____

4 Solve: $2.5x = 7.5$

ANSWER _____

5 Solve: $x/(2/7) = 3\ 1/2$

ANSWER _____

6 Solve: $x/1.2 = 0.5$

ANSWER _____

APPLY IT Show your work

- 1** At a game tournament, $\frac{2}{5}$ of Jordan's total points came from bonus rounds. The bonus rounds were worth 18 points. How many total points did Jordan earn?

WORK SPACE

ANSWER _____

- 2** Maya has x dollars in her snack budget. After adding \$1.75 from chores, she has \$6.50. How much money did she have before the chores?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Solve and explain your reasoning: $x/(2\frac{1}{4}) = 1\frac{1}{3}$

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $x + \frac{2}{3} = \frac{5}{6}$	$x = \frac{1}{6}$
2	Solve: $x + 1.4 = 3.9$	$x = 2.5$
3	Solve: $(\frac{3}{4})x = 6$	$x = 8$
4	Solve: $2.5x = 7.5$	$x = 3$
5	Solve: $x/(\frac{2}{7}) = 3 \frac{1}{2}$	$x = 1$
6	Solve: $x/1.2 = 0.5$	$x = 0.6$

PART 2 • APPLY IT

1. **45 points** Let x be Jordan's total points. Solve $(\frac{2}{5})x = 18$ by multiplying 18 by $\frac{5}{2}$, so $x = 45$.
2. **\$4.75** Write $x + 1.75 = 6.50$. Subtract 1.75 from 6.50 to get $x = 4.75$.

CHALLENGE

$x = 3$. Multiplying both sides by $2 \frac{1}{4}$ gives $x = (1 \frac{1}{3})(2 \frac{1}{4}) = 3$.

Accept equivalent fractions, decimals, or mixed numbers when they represent the same value. For the challenge, accept an explanation that shows multiplying both sides by $2 \frac{1}{4}$.