Unit 4, Lesson 4

Practice Solving Equations

Let's solve equations by doing the same to each side.

4.1 Math Talk: Dividing by Fifths

Find the value of each expression.

- $10 \div \frac{1}{5}$
- $10 \div \frac{2}{5}$
- $1 \div \frac{2}{5}$
- $\frac{1}{10} \div \frac{2}{5}$

4.2 Card Sort: Equations and Solutions

Your teacher will give you a set of cards. Take turns with your partner to match an equation with its solution.

1. For each match that you find, explain to your partner how you know it's a match.
2. For each match that your partner finds, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.
3. After all the cards are matched, sort the matches into two categories based on operations.

4.3 Row Game: Solving Equations Practice

Solve the equations in one column. Your partner will work on the other column.

Check in with your partner after you finish each row. Your answers in each row should be the same. If your answers aren't the same, work together to find the error and correct it.

column A	column B
$18 = 2x$	$36 = 4x$
$17 = x + 9$	$13 = x + 5$
$8x = 56$	$3x = 21$
$21 = \frac{1}{4}x$	$28 = \frac{1}{3}x$
$6x = 45$	$8x = 60$
$x + 4\frac{5}{6} = 9$	$x + 3\frac{5}{6} = 8$
$\frac{5}{7}x = 55$	$\frac{3}{7}x = 33$
$\frac{1}{5} = 6x$	$\frac{1}{3} = 10x$
$2.17 + x = 5$	$6.17 + x = 9$
$\frac{20}{3} = \frac{10}{9}x$	$\frac{14}{5} = \frac{7}{15}x$
$14.88 + x = 17.05$	$3.91 + x = 6.08$
$3\frac{3}{4}x = 1\frac{1}{4}$	$\frac{7}{5}x = \frac{7}{15}$

Lesson 4 Summary

When we solve an equation with a variable, we find the value for the variable that makes the equation true. One way to solve the equation is to do the same thing to each side until the variable is alone on one side of the equal sign, and see what is on the other side.

Solve the equation $x + \frac{3}{4} = \frac{7}{8}$.

The fraction $\frac{3}{4}$ is added to the variable x.

$$x + \frac{3}{4} = \frac{7}{8}$$

So, we can subtract $\frac{3}{4}$ from each side of the equation.

$$x + \frac{3}{4} - \frac{3}{4} = \frac{7}{8} - \frac{3}{4}$$

The variable is alone on one side of the equal sign, and $\frac{1}{8}$ is on the other side.

$$x = \frac{1}{8}$$

When we substitute $\frac{1}{8}$ for x in the original equation, the equation is true. So, we know $\frac{1}{8}$ is the solution.

$$\frac{1}{8} + \frac{3}{4} = \frac{7}{8}$$
$$\frac{7}{8} = \frac{7}{8}$$

Solve the equation $3.5x = 31.5$.

The variable x is multiplied by 3.5.

$$3.5x = 31.5$$

So, we can divide each side of the equation by 3.5.

$$3.5x \div 3.5 = 31.5 \div 3.5$$

The variable is alone on one side of the equal sign, and 9 is on the other side.

$$x = 9$$

When we substitute 9 for x in the original equation, the equation is true. So, we know 9 is the solution.

$$3.5(9) = 31.5$$
$$31.5 = 31.5$$