Solving Multiplication and Division Equations

CCSS: 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.

Launch

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Some students sign up for summer swim classes. The swim coach splits them evenly to form 13 classes with 8 students in each class. How many students sign up for swim class?

Show how to solve the problem using division and multiplication.
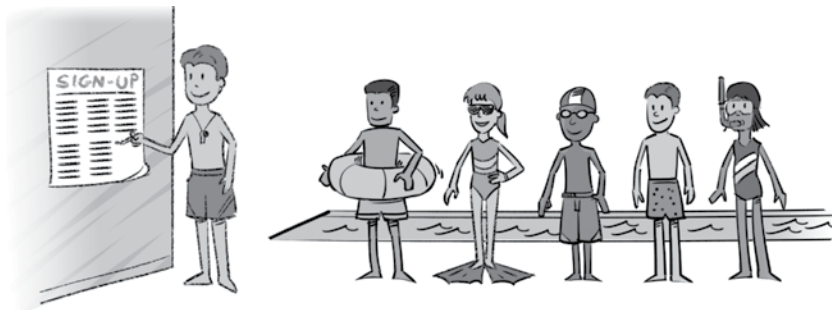
Division	Multiplication

Reflect Could you have solved the problem using only division and not any multiplication? How?

Got It?

PART 1 Got It

> Solve the equation $5s = 30$.

PART 2 Got It

> Each equation shows an operation. For which equation(s) is division the inverse operation?
>
> **I.** $m \div 3 = 27$ **II.** $39 = h \cdot 13$ **III.** $10 \cdot z = 120$

PART 3 Got It

> Solve the equation $m \div 15 = 25$.

Close and Check

Focus Question

How do you use multiplication and division to undo each other? Why might this be helpful in balancing equations?

Do you know HOW?

1. Write and solve the modeled equation.

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x	x	x	x	x	x	x

☐ $x =$ ☐

$x =$ ☐

2. Write the inverse operation for each equation shown in the table below. Use **A** for addition, **S** for subtraction, **M** for multiplication and **D** for division.

Equation	Inverse Operation
$36 = 12r$	
$d \div 15 = 4$	
$5 + f = 13$	
$56 = 7t$	
$14 \div s = 2$	
$63 - p = 46$	

Do you UNDERSTAND?

3. **Writing** Draw and explain a model of the equation $3x = 18$.

4. **Reasoning** A teacher has 72 pencils to split among 24 students. She asks the class to write an equation to figure out how many each gets.
Student A writes: $72 \div 24 = x$
Student B writes: $24x = 72$
Who is correct? Explain.