



In this tutorial, we'll continue using *algebra* to solve 2-step equations...

$$\frac{2}{3}n + 5 = 7$$

However, solving our equations this time will also involve recalling how we calculate with **fractions**.

$$\frac{2}{3}n + 5 = 7$$

Before we get to the fraction stuff... let's think about how we solve an equation using *algebra*.

$$\frac{2}{3}n + 5 = 7$$

How would *you* describe the *algebra steps* required to isolate and solve for the variable in this equation?



$$\frac{2}{3}n + 5 = 7$$

Can you predict the type fraction calculation you'll need to perform as part of your solution path?

$$\frac{2}{3}n + 5 = 7$$

Let's begin our solution by performing the first *algebra* step towards isolating the variable.

How would you explain and demonstrate this step?



$$\frac{2}{3}n + 5 = 7$$

$$\frac{2}{3}n + 5 - 5 = 7 - 5$$

$$\frac{2}{3}n \div \frac{2}{3} = 2 \div \frac{2}{3}$$

Our next *algebra* step involves undoing multiplication by performing the opposite operation... division.

What do you recall regarding division by a fraction?

Let's perform this next step and isolate the variable.
How would you demonstrate *multiply by the reciprocal*?

$$\frac{2}{3}n + 5 = 7$$

$$\frac{2}{3}n + 5 - 5 = 7 - 5$$

$$\frac{2}{3}n \times \frac{3}{2} = 2 \times \frac{3}{2}$$

To divide by a fraction... multiply by its reciprocal.

How would you explain and demonstrate multiplying fractions?



$$\frac{2}{3}n + 5 = 7$$

$$\frac{2}{3}n + 5 - 5 = 7 - 5$$

$$\frac{2}{3}n \times \frac{3}{2} = 2 \times \frac{3}{2}$$

You've isolated the variable and solved the equation.
Let's verify the solution using substitution.

How would you demonstrate verifying your solution using substitution?

Can you also predict where you'll need to use your knowledge for calculating with fractions?



Let's look at a similar equation requiring a fraction calculation in its solution path.

$$\frac{3}{4}m + 6 = 18$$

$$\frac{3}{4}m + 6 = 18$$

First, let's focus on the *algebra* steps required for solving.

How would you describe the *algebra* steps required for solving?

$$\frac{3}{4}m + 6 = 18$$

$$\frac{3}{4}m + 6 - 6 = 18 - 6$$

$$\frac{3}{4}m \div \frac{3}{2} = 12 \div \frac{3}{4}$$

Now that you've described the *algebra* steps required for solving, can you predict where in the solution you'll need to use your knowledge of fractions?



$$\frac{3}{4}m + 6 = 18$$

$$\frac{3}{4}m + 6 - 6 = 18 - 6$$

$$\frac{3}{4}m \div \frac{3}{2} = 12 \div \frac{3}{4}$$

Let's see your entire solution path.
How would you explain and
demonstrate all steps?

2-step equations with a fraction - Skills Checklist



- I can solve an equation using algebra
- I can isolate a variable by performing the opposite operations
- I can explain and demonstrate how I divide fractions
- I can explain and demonstrate how I multiply fractions
- I can explain and demonstrate how I simplify fractions
- I can explain and demonstrate how I use substitution to verify my solution to an equation

2-step equations with a fraction - Worksheet



$2ab + 6k$
 $2ab + 6k$