



2.1.B SOLVING TWO-STEP EQUATIONS

1. Undo anything added or subtracted **FIRST** to the variable side.
2. **THEN** Undo anything multiplied or divided to the variable.

Oct 19-8:39 AM



$$\text{Ex: } 7x + 9 = 16$$

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$$\text{Ex: } 17 + 2x = -63$$

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$$\text{Ex: } 34 = 2 - 8x$$

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$$\text{Ex: } \frac{2}{3}x - 5 = 7$$

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$$\text{Ex: } \frac{x}{5} + 10 = 2$$

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Let's practice
solving some
equations using
our algorithm!!!



Oct 10-3:16 PM



Solve Real-World Problems Using Two-Step Equations

When we are faced with real world problems the thing that gives people the most difficulty is going from a problem in words to an equation. First, look to see what the equation is asking. What is the unknown for which you have to solve? That will determine the quantity we will use for our variable. The text explains what is happening. Break it down into small, manageable chunks. Then, follow what is going on with our variable all the way through the problem.

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Example 1

An emergency plumber charges \$65 as a call-out fee plus an additional \$75 per hour per hour. He arrives at a house at 9:30 and works to repair a water tank. If the total repair bill is \$196.25, at what time was the repair completed?

In order to solve this problem, we collect the information from the text and convert it to an equation.

Unknown time taken in hours – this will be our "x"

The bill is made up of two parts: a call out fee and a per-hour fee. The call out is a flat fee, and independent of "x". The per-hour part depends on "x". Lets look at how this works algebraically.

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\$65 as a callout fee and an additional \$75 per hour

So the bill, made up from the call out fee plus the per hour charge times the hours taken creates the following equation. X is the number of hours.

$$\text{Total bill} = \$65 + \$75x$$

Lastly, we look at the final piece of information. The total on the bill was \$196.25. So our final equation is:

$$\$196.25 = \$65 + \$75x$$

We solve for x:

$$\$196.25 = \$65 + 75x$$

$$\begin{array}{r} -65 \quad -65 \\ \hline \end{array} \quad \text{Subtract 65 from both sides}$$

$$\$131.25 = 75x$$

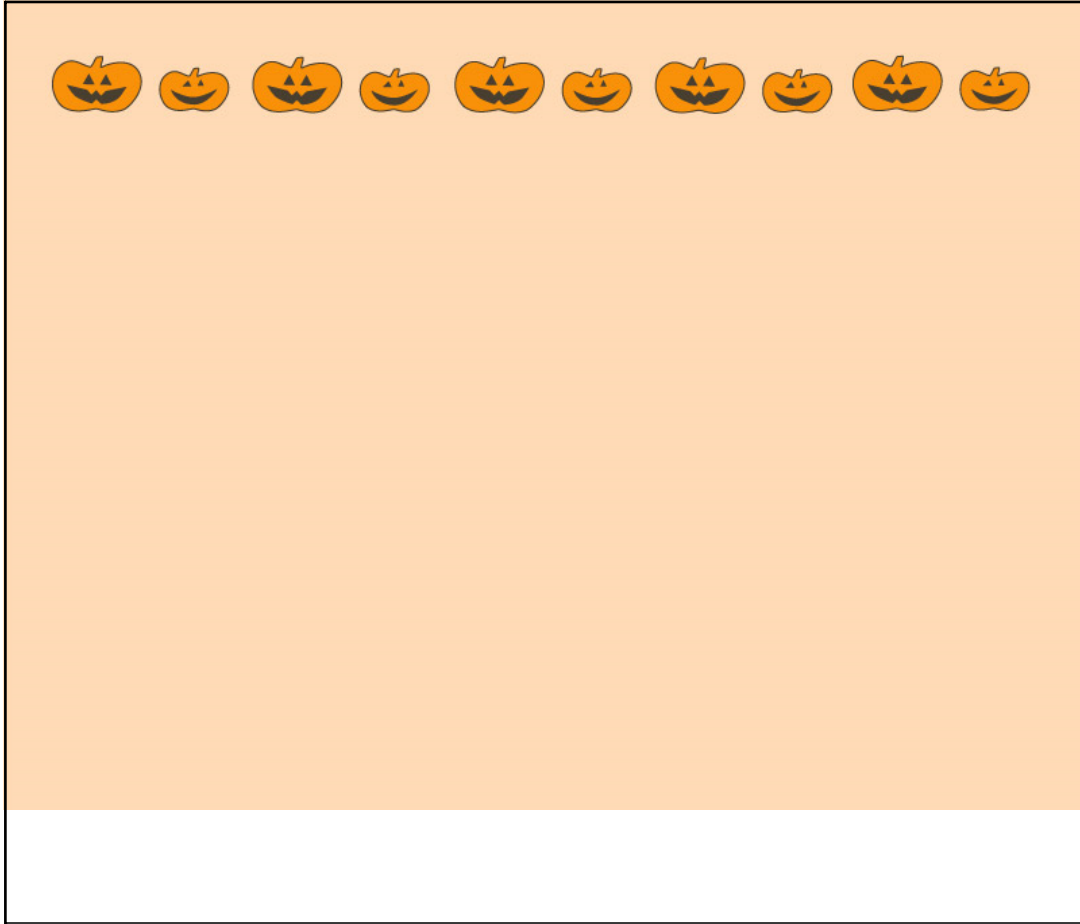
$$\begin{array}{r} \frac{75}{75} \quad \frac{75}{75} \\ \hline \end{array} \quad \text{Divide both sides by 75}$$

$$1.75 = x$$

Solution: The time was one and 3/4 hours

The repair job was completed at 11:15 AM.

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