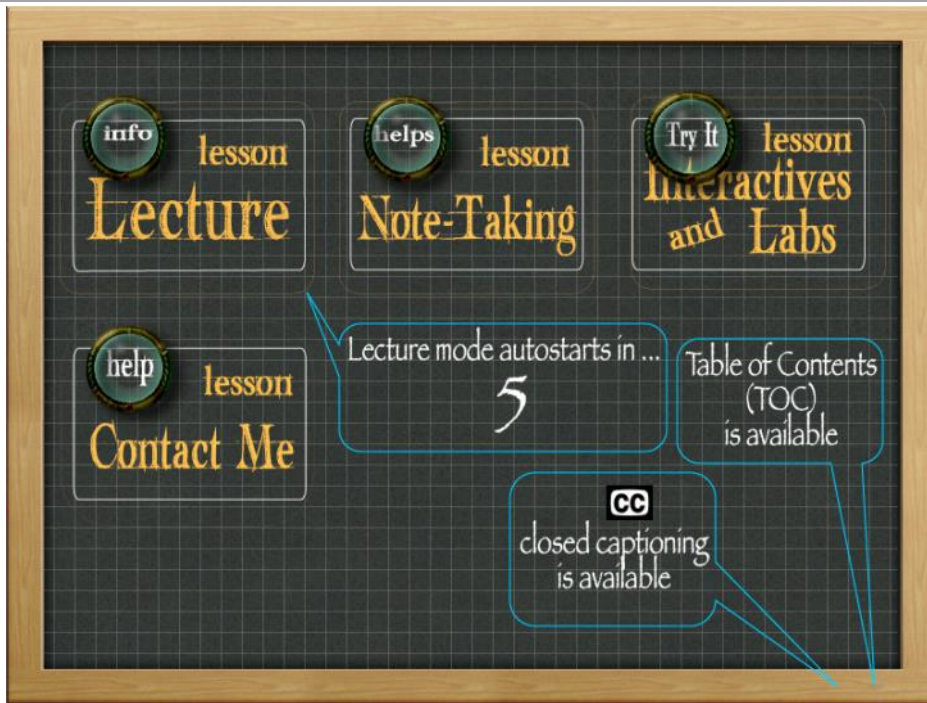


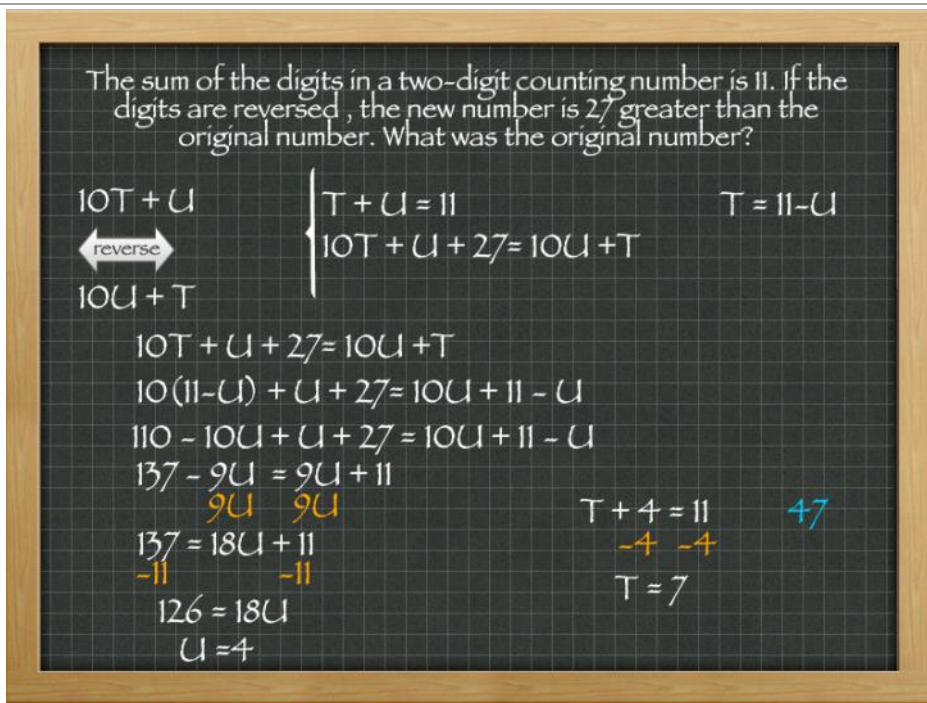
# Number Word Problems

Friday, November 15, 2013  
10:40 AM

Slides



Notes



In this one, you will have to be careful to know if you are talking about the digits that make up the number or the value of the number

Let's get familiar with the task first: "The sum of the digits in a two-digit counting number is 11."

OK, here is that part as an equation in a system of equations. The T stands for the ten's place digit and the U stands for the units, or ones, place.

"If the digits are reversed, the new number is 27 greater than the original number." That one will be dealing with the value of the reversed digits. Let's get a handle on the value of the digits before reversing first. The digit in the tens place will be multiplied by ten to get its true value. We will swap the 10 to the units to reverse it for the value. Now we create an equation that adds the normal position to 27 and makes it equal to the reversed position.

Now we have both of our equations as a system of equations. For a bit it is just like you have already learned to do for solving a system of equations. We will use the

substitution technique and solve for one of the variables. We will substitute that in to another equation to get the other digit.

Now the last step is to put the units into their place. The ten's place is 4 and the unit's place is 7, so our number is 47.

Try It

The sum of the digits of a two-digit counting number was 9. When the digits were reversed, the new number was 45 less than the original number. What was the original number?

$$\begin{array}{l}
 10T + U \\
 \leftarrow \text{reverse} \rightarrow \\
 10U + T
 \end{array}
 \quad \left\{ \begin{array}{l}
 T + U = 9 \\
 10U + T + 45 = 10T + U
 \end{array} \right.$$

$$\begin{array}{l}
 10U + T + 45 = 10T + U \\
 10U + (9 - U) + 45 = 10(9 - U) + U \\
 9U + 54 = 90 - 10U + U \\
 \quad -54 \quad -54 \\
 9U = 36 - 9U \qquad T + U = 9 \\
 9U \qquad \qquad 9U \qquad T + 2 = 9 \\
 18U = 36 \qquad \qquad -2 \quad -2 \\
 U = 2 \qquad \qquad \qquad T = 7
 \end{array}$$

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Congratulations!  
 You have completed  
 this topic

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 this lesson if you wish...


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