

Math 3

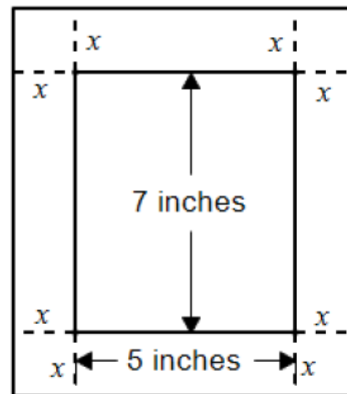
4.1 Equations in One Variable Notes

When solving contextual type problems it is important to:

- Identify what you know.
- Determine what you are trying to find.
- Draw a picture to help you visualize the situation when possible. Remember to label all parts of your drawing.
- Use familiar formulas to help you write equations.
- Check your answer for reasonableness and accuracy.
- Make sure you answered the entire question.
- Use appropriate units.

Example 1:

You want to create a custom border for a picture of you and your closest friends. The picture measures 5 inches by 7 inches. What should the width of the border be if the final area, including the border, is twice the area of the picture?



Example 2:

The height of a plastic rectangular prism storage container is 4 inches shorter than the width. The length is 7 inches longer than the width. The volume of the storage container is 5304 cubic inches. What are the dimensions of the container?

Work Problems

The equation $\frac{t}{a} + \frac{t}{b} = 1$, where a is the amount of time for A to complete the work alone, b is the amount of time for B to complete the work alone, and t is the amount of time needed for A and B to complete the work together, can be used to find the amount of time required for work to be done.

Example 3:

Britton can refinish the floor in 9 hours. Britton and Jason can refinish the floor together in 4 hours. How long would it take Jason to finish the floors himself?

Distance, Rate, and Time Problems

$$\frac{d}{r_1} + \frac{d}{r_2} = t$$

Where d is the distance (one way), r_1 and r_2 are individual rates, and t is the total time travelled

Example 4:

A tugboat goes 12 mph in still water. It travels 45 miles upstream and 45 miles back in 8 hours. What is the speed of the current?