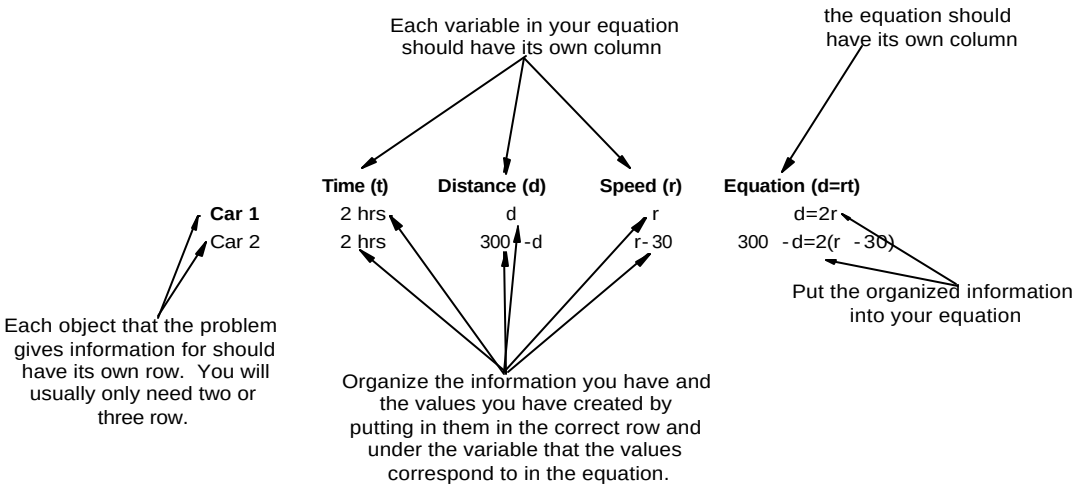
Tips for Solving Story Problems

- Write all your work down as you go so you can go back and check it later.
- Think of math as a foreign language like French or Spanish, if you can translate the English into math you can gain a better understanding of the problem.
- Take the problem a little at a time. You may have to find several other values before you find the answer.
- It may be helpful to organize the important information in the problem into a table.
- When you have a number that you think may be the answer, be sure to stop and decide what the number means. Is it the speed or the distance? Maybe it's the speed of the stream rather than the boat, etc.

How to Set Up a Table



Steps for Solving Story Problems

1. Read the problem carefully. Note what information is provided and what information the question is asking you to find.
2. Give all of the information a name (a.k.a. variable) whether you know it or not.
3. Draw a picture of the story problem and label it with the information (both known and unknown).
4. Create an equation or series of equations using the information and their relations to each other in the problem. In many cases you can use an equation you already know.
5. Pick an equation to focus on. If the equation has more than one variable in it, pick a variable to solve for. After you solve for your chosen variable, plug the result in to the equation you haven't used yet.
6. Once you have an answer, check to make sure you have found what the problem asked for and that your answer makes sense. Mountains cannot be five feet tall and cars cannot go 6000 miles in 3 minutes.

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Here is an example problem……

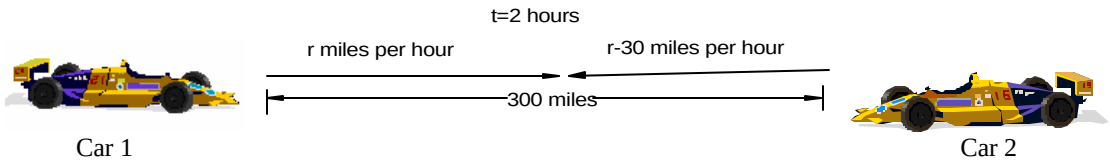
Problem: Two racecars start from points 300 miles apart and travel toward each other. They meet after 2 hours. Find the average speed of each car if one travels 30 mph slower than the other.

Step 1: Two racecars start from points 300 miles apart and travel toward each other. They meet after 2 hours. Find the average speed of each car if one travels 30 mph slower than the other.

Step 2: Give all of the information a name/variable and put question marks next to information you need to find.

	Information	Variable/Name	Value	Units
Car 1 Information	time	t	2	hours
	distance	d	?	miles
	speed	r	?	mph
Car 2 Information	time	t	2	hours
	distance	300-d	?	miles
	speed	r-30	?	mph

Step 3:



Step 4: You should already know an equation that would work for this problem, distance=rate*time. You can put all the information from Step 2 into a different table to help you plug it into the equation more easily. Since there are two different cars, they will each need a separate equation.

	Time (t)	Distance (d)	Speed (r)	Equation (d=rt)
Car 1	2 hrs	d	r	d=2r
Car 2	2 hrs	300-d	r-30	300-d=2(r-30)

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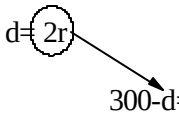
Step 5: You can treat these two equations like a system of equations and use substitution to find one of the variables.



$$300-d=2(r-30)$$

$$300-2r=2(r-30)$$

$$300-2r=2r-60$$
$$+2 \quad +2r$$

$$300=4r-60$$
$$+60 \quad +60$$

$$\frac{360}{4}=\frac{4r}{4}$$

$$r=90$$

You now have the speed of car 1 (r=90 mph) but not Car 2. You can now use r=90 to find the other speed by plugging r into the value you have created for the second car's speed.

Speed of Car 2=r-30

Speed of Car 2=90-30

Speed of Car 2=60

You can now find what all of the question marks by plugging r=90 into your two original equations and solving for d although finding d is unnecessary since the question only asks for the speed of each car:

	Information	Variable/Name	Value	Units
Car 1 Information	Time	t	2	hours
	Distance	d	180	miles
	Speed	r	90	mph
Car 2 Information	Time	t	2	hours
	Distance	300-d	120	miles
	Speed	r-30	60	mph

Step 6: The question wanted the speed of the two cars so the answers would be 90 mph and 60 mph. It makes sense that racecars would go 90 mph and 60 mph and all of the arithmetic is correct so these must be the answers.

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