



Try these problems before watching the lesson.

1. If x is 3 more than y , and y is 5 less than z , then what is $z - x$?
2. A container is filled with 3 cups of lemon juice and 7 cups of water. How many cups of pure water must be added so that the container is 25% lemon juice?
3. Juan takes a number, adds 2 to it, multiplies the answer by 2, subtracts 2 from the result, and finally divides that number by 2. If his answer is 7, what was the original number?
4. My sister and I are buying a television for our room. Because I am older, I will pay \$45 more than my sister. If the television costs \$299, then how much does my sister have to pay?



First Problem: A bag contains 4 blue, 5 green and 3 red marbles. How many green marbles must be added to the bag so that 75 percent of the marbles are green?

Second Problem: MD rides a three wheeled motorcycle called a trike. MD has a spare tire for his trike and wants to occasionally swap out his tires so that all four will have been used for the same distance as he drives 25,000 miles. How many miles will each tire drive?

Third Problem: Lucy and her father share the same birthday. When Lucy turned 15 her father turned 3 times her age. On their birthday this year, Lucy's father turned exactly twice as old as she turned. How old did Lucy turn this year?

 Follow-up Problems

5. A student correctly answers 15 of the first 20 questions on an examination. He then answers $\frac{1}{3}$ of the remaining questions correctly. All of the questions are worth the same amount. If the student's final score is 50%, how many questions are on the exam?
6. Douglas writes down his favorite number, which is a two-digit positive integer. He then turns the number into a three-digit number by writing a 7 at the end of his favorite number. This new number is 385 more than Douglas's favorite number. What is Douglas's favorite number?
7. Mary is seven years older than her sister. In three years, Mary will be twice as old as her sister will be. In years, how old is Mary now?
8. Joe and Mary each pay the same price for a T-shirt. Before they buy it, Mary has \$2 more than Joe. To buy the T-shirt, Joe spends \$1 less than $\frac{2}{5}$ of his money, and Mary spends $\frac{1}{3}$ of her money. What was the total amount of money Joe and Mary originally had altogether?

 Share Your Thoughts

Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).