



Try these problems before watching the lesson.

1. 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?
2. The mean of seven of Charlotte's scores is 80. The mean of three of those scores is 60. What is the mean of the other four scores?
3. 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?
4. Round tables seating 8 people and rectangular tables seating 12 people are being used at a banquet for 8th graders. The ratio of round tables to rectangular tables is 2 to 1. How many tables are used to seat 336 students at the banquet, if no table has an empty seat?




First Problem: Allie plays basketball with her friends and makes 10 baskets. If each basket is worth either 2 or 3 points, and Allie scores a total of 26 points, how many baskets worth 3 points did she make?

Second Problem: Andre can complete $\frac{5}{6}$ of a job in $\frac{3}{4}$ of the time that it takes Michael to do the whole job. What is the ratio of the rate at which Andre works to the rate at which Michael works? Express your answer as a common fraction.

 Follow-up Problems

5. A camel can carry a maximum weight equal to either 18 identical large jugs of water or 30 identical small jugs of water. If the camel is loaded with 25 small jugs of water, how many additional large jugs of water can the camel carry?
6. After climbing the hill, Jack and Jill drove home. They started from the same place at the same time, and ended at the same place. Jill drove 10 miles per hour faster than Jack, and she drove for 80% of the amount of time that Jack drove. What was Jack's average speed on his drive home?
7. Tirunesh and Sally start at the same point on a 400-meter circular track. They start running at the same time in *the same* direction around the track. Tirunesh runs at a rate of 8 meters per second, while Sally runs 7 meters per second. How many seconds will pass before the two of them are again at the same point on the track?
8. 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?

 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).