

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. Tony's Towing Service charges \$30.00 to hook a vehicle to the tow truck and \$1.75 for each mile the vehicle is towed. Mr. Alman's car broke down at school and was towed to his house. If the total amount charged by Tony's Towing was \$59.75, what is the distance Mr. Alman's car was towed from the school to his house?
3. Tweedledum says, "The sum of your weight and twice mine is 361 pounds." Tweedledee says, "Contrariwise, the sum of your weight and twice mine is 362 pounds." If they are both correct, how much do Tweedledum and Tweedledee weigh together?
4. A rectangle has area 108 square inches and perimeter 42 inches. If the length and the width are both increased by 1 inch, then what is the area of the resulting rectangle?




First Problem: A streaming video service offers its customers two plans. The first plan has a \$24 registration fee, a fixed monthly rate of \$5 and a charge of \$0.75 for each video download. The second plan has a \$15 registration fee, a fixed monthly rate of \$3 and a charge of \$1.50 for each video download. For how many downloads would the two plans cost the same for a year of service?

Second Problem: The length of a rectangle is three times its width. A new rectangle is created by decreasing the length of the original rectangle by 9 feet and increasing its width by 4 feet. The area of the new rectangle is the same as the area of the original rectangle. What is the perimeter of the new rectangle?

Third Problem: A restaurant sells three sizes of drinks: small for \$1.20, medium for \$1.30 and large for \$1.80. Each person at a table of ten ordered one drink, for a total cost of \$14.90, before sales tax. How many people ordered a large drink?

 *Follow-up Problems*

5. At the school fair, MATHCOUNTS parents sold chocolate and vanilla ice cream as a fund-raiser. Forty bowls of chocolate ice cream were sold for \$2.15 per bowl. Bowls of vanilla ice cream sold for \$1.90 each. How many bowls of ice cream were sold if the total amount of money collected was \$158.20?
6. A rectangular painting has area 60 square inches and perimeter 48 inches. I place a rectangular frame around the painting. The frame produces a one-inch margin all the way around the painting.
 - (a) What is the outer perimeter of the frame?
 - (b) What is the area of the frame?
7. The pound has three kinds of dogs: pit bulls, chihuahuas, and mutts. All but 23 of the dogs are pit bulls, all but 17 of the dogs are chihuahuas, and all but 28 of the dogs are mutts. How many dogs are in the pound?
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).