



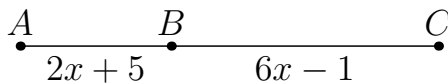
Try these problems before watching the lesson.

1. Find the value of u given the following two equations:

$$u + v + w + x + y + z = 45,$$

$$v + w + x + y + z = 21.$$

2. 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?
3. Find the sum of the reciprocals of two numbers if the sum of the two numbers is 6 and the product of the two numbers is 7.
4. In the figure, $AC = 36$ cm. What is the length of segment AB ?



First Problem: Ross and Max have a combined weight of 184 pounds. Ross and Seth have a combined weight of 197 pounds. Max and Seth have a combined weight of 189 pounds. How many pounds does Ross weigh?

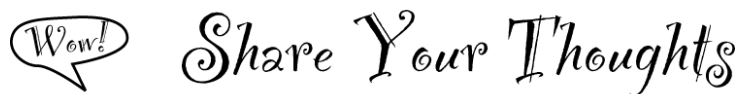
Second Problem: On line segment AE , shown here, B is the midpoint of segment AC and D is the midpoint of segment CE . If $AD = 17$ units and $BE = 21$ units, what is the length of segment AE ?



Third Problem: The areas of three faces of a rectangular prism are 54, 24 and 36 units². What is the length of the space diagonal of this prism?



5. 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?
6. In a group of five friends, the sums of the ages of each group of four of them is 58, 59, 61, 62 and 64. What is the age of the oldest of the five friends?
7. If $xyz = 45$ and $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{5}$, then what is the arithmetic mean of the three products xy , yz , and zx ?
8. The area of a rectangle is 168 in², and its perimeter is 62 inches. What is the product of the lengths of the diagonals of this rectangle?



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).