



Try these problems before watching the lesson.

1. The average of 7 numbers is 43. What is the sum of the 7 numbers?
2. If the largest of the 7 numbers in the previous problem is 55, then what is the average of the other 6 numbers?
3. Find the value of u given the following two equations:

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

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

4. Expand the product $(a + b)(a + b)$.
5. 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.



First Problem: When one integer is removed from a list of five integers the mean of the remaining four integers is 3 less than the mean of the original five integers. What is the positive difference between the mean of the original five integers and the integer that was removed?

Second Problem: Two positive numbers have the property that the sum of their squares is 20 and the sum of their reciprocals is 2. What is their product?



6. Find $a^2 + \frac{1}{a^2}$ if $a + \frac{1}{a} = 3$.
7. Find $a^3 + \frac{1}{a^3}$ if $a + \frac{1}{a} = 3$.
8. If x , y , and z are positive numbers such that $xy = 4$, $yz = 18$, and $zx = 50$, then what is xyz ?
9. When one integer is removed from a list of seven integers the mean of the remaining six integers is 5 less than the mean of the original seven integers. What is the positive difference between the mean of the original seven integers and the integer that was removed?
10. Investigate the “coincidence” Richard mentioned in his solution to the First Problem. Is it a coincidence, or can you explain a slicker solution to the problem?



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).