

# Tough: You have to do Math

Of all of the things that are special about Christmastime, there's one thing that I sometimes worry about: that the break from school might leave your math skills rusty. So here are 4 mathematical story problems to help you stay sharp.

Nickels and dimes are the only coins that Peter has. He has 18 coins total. When he first calculated their total value, he miscalculated as if all the nickels were dimes and all the dimes were nickels. By doing so, he arrived at a total that was sixty cents less than the correct value. How many dimes does he have?

In honor of a recent wedding anniversary, Susan and her husband sent a letter to several friends inviting them to a party. A total of 14 other couples came. At the party several people shook hands as they met. Of course, nobody shook hands with their spouse nor did anybody shake hands with themselves. Susan asked everyone else at the party how many people they shook hands with. She was surprised to hear that no two people gave the same number. How many times did Susan shake hands at the party?

On her way to the store to pick up the rest of the ingredients she needed for dinner, Lucy maintained an average speed of 12 miles per hour on her bicycle. On the way home, with more uphill sections, she only managed four miles per hour. As soon as she got home, she realized she forgot one ingredient. On her second trip to the store she rode as fast as she could, and over the round trip she averaged eighteen miles per hour. What was her average speed over both trips together?

Now the last problem: Each touchdown is awarded only 5 points when Edmund's football team plays a modified game during practices. Immediately after scoring a touchdown the team has the opportunity to attempt an extra point. There are no other possibilities for scoring. What is the highest score that cannot be achieved in this game, (assuming no time limit on the game)?

Surely, for each paragraph above, as quickly as you read it you also found the solution to each of the 4 problems. You must know how many dimes Peter has, how many hands Susan shook, Lucy's average speed, the value of Peter's nickels, how many hands Susan's husband shook, and that highest impossible football score. And if you know those answers, congratulations, you can use them to determine the final answer below! But if you didn't solve all of the math problems, that's OK because there's an easier way to get the answer as well. Here's the final question: What ingredient did Lucy forget to buy the first time?

Solution: \_ \_ \_ \_ \_