

Solution to Bagels Puzzle 1

1. What do you know after the first three guesses in Game 1?

Answer: You know that exactly one of the three digits (6, 7 or 4) is correct but in the wrong place, exactly one of the three digits (0, 3 or 2) is correct but in the wrong place, and exactly one of the three digits (5, 1 or 9) is correct and in the right place. Since all three digits are from these numbers, you now know that the only digit not tested, 8, is not in the answer.

2. What do you know after guess #4?

Answer: You know that in addition to 8, the digits 3, 4, and 9 are also not in our solution (because of bagels in response to guess 4).

3. What do you know after guess #5?

Answer: Since 560 gives you a pico (Guess 5), and 519 gives you a fermi (Guess 3), then 5 is out because 5 cannot be correct in the first position and also incorrect in the first position. Since both 5 and 9 are eliminated this means that 1 must be correct and is in the middle position (fermi in response to guess 3). Thus we know: __ 1 __. Likewise we know that 0 is eliminated because if 0 is one of the digits it cannot be in the first position (see guess #2) and it cannot be in the last position (see guess #5), then since 1 is in the middle position we know that 0 cannot be in the middle position. Therefore, if 5 and 0 are eliminated then 6 must be one of the digits (see guess #5). If 6 cannot be in the first or second position then 6 must be in the third position. We now know __16.

4. What is the 3-digit number? Explain.

Answer: So far we have eliminated 0, 3, 4, 5, 8, and 9. If 0 and 3 are eliminated then 2 must be our third digit (see guess #2). Thus our 3-digit number is 216.