

1. Lucky Combination

Martha was telling her mother about her first day at school. After telling her mom about her teacher and her classmates, Martha gave this problem.

My locker number at school is a three-digit number.

The product of the digits is 12.

The sum of the digits is 9.

The digit in the tens place is higher than the digit in the hundreds place and lower than the digit in the ones place.

Do you know what my locker number is?

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Hints

- (1) *What are the conditions?* What in the problem tells whether or not the same digit can appear more than once in Martha's number?
- (2) *Make a list* three-digit numbers using groups of three different one-digit numbers that sum to 9.
- (3) *What are the conditions?* Which group of numbers in your list has a product of 12?

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Looking Back Questions: 1

- (A) Suppose the problem above is the same except the digits sum to 10 and their product is 30. What is the locker number? (Hint: *Make a List* of different one-digit numbers that sum to 10 and examine their products.)
- (B) Suppose the problem above is the same except the digits sum to 12 and their product is 42. What is the locker number?
- (C) Suppose the problem above is the same except the digits sum to 20 and their product is 216? What is the locker number?
- (D) Use the conditions in (C) above and suppose the sentence, "The digit in the tens place is higher than the digit in the hundreds place and lower than the digit in the ones place," were changed to, "All the digits of my locker number are different." What solution would you offer?