

You have nine coins: a collection of pennies, nickels, dimes, and quarters having a total value of \$1.02, with at least one coin of each type. How many dimes must you have?

- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

2000 AMC 8, Problem #20—

“Since the total value is \$1.02, you must have either 2 or 7 pennies.”

Solution

Answer (A): Since the total value is \$1.02, you must have either 2 or 7 pennies. It is impossible to have 7 pennies, since the two remaining coins cannot have a value of 95 cents. With 2 pennies the remaining 7 coins have a value of \$1.00. Either 2 or 3 of these must be quarters. If you have 2 quarters, the other 5 coins would be dimes, and you would have no nickels. The only possible solution is 3 quarters, 1 dime, 3 nickels and 2 pennies.

Difficulty: Medium-hard

NCTM Standard: Algebra Standard for Grades 68: relate and compare different forms of representation for a relationship.

Mathworld.com Classification: Number Theory > Arithmetic > Addition and Subtraction