

Hybleland L9-Lesson 3 Counting III-Combination 1-Assignment

Practice 1. Find the value of

(1) C_7^2 C_7^5

(2) C_{50}^2 C_{50}^{48}

Practice 2.

An electrician is testing 7 different wires. For each test, the electrician chooses 2 of the wires and connects them. What is the least number of tests that must be done so that every possible pair of wires is tested?

- (A) 7 (B) 14 (C) 16 (D) 18 (E) 21

Practice 3.

AMC10B 2007 / Problem 8

On the trip home from the meeting where this AMC10 was constructed, the Contest Chair noted that his airport parking receipt had digits of the form $bbcac$, where $0 \leq a < b < c \leq 9$, and b was the average of a and c . How many different five-digit numbers satisfy all these properties?

- A. 12 B. 16 C. 18 D. 20 E. 24

Practice 4.

In a volleyball league with 5 teams, each team plays exactly 3 games with each of the other 4 teams in the league. What is the total number of games played in this league?

- (A)15 (B)20 (C)12 (D)25 (E)30

Practice 5.

AMC8 2005 / Problem 14

The Little Twelve Basketball Conference has two divisions, with six teams in each division. Each team plays each of the other teams in its own division twice and every team in the other division once. How many conference games are scheduled?

- A. 80 B. 96 C. 100 D. 108 E. 192

Practice 6.

On a meeting every guest shakes hands, exactly once, with every other guest. There are 36 handshakes between women and 28 handshakes between men. Find the number of handshakes between women and men.

- (A)72 (B)78 (C)36 (D)38 (E)120

Practice 7.

(AMC) Nine chairs in a row are to be occupied by six students and Professors Alpha, Beta and Gamma. These three professors arrive before the six students and decide to choose their chairs so that each professor will be between two students. In how many ways can Professors Alpha, Beta and Gamma choose their chairs?

- (A)12 (B)36 (C)60 (D)84 (E)630

Problem 8. Nine students, including Joseph, Leo, Owen and Bryce, want to stand in a row to take a photo. However, Joseph, Owen and Bryce don't want to stand next to each other, how many arrangements are there for the nine students?

Practice 9.

A number is called increasing if each of its digits is greater than the digit immediately to its left, if there is one. How many increasing numbers are there between 100 and 200?

- (A)100 (B)101 (C)20 (D)28 (E)30

Practice 10.

How can three-digit natural numbers are there of the form \underline{htu} where $h > t > u$?

- (A) 120 (B) 28 (C) 900 (D) 720 (E) 60

Practice 11.

AMC10B 2005 / Problem 18

All of David's telephone numbers have the form $555 - abc - defg$, where a, b, c, d, e, f , and g are distinct digits and in increasing order, and none is either 0 or 1. How many different telephone numbers can David have?

- A. 1 B. 2 C. 7 D. 8 E. 9