

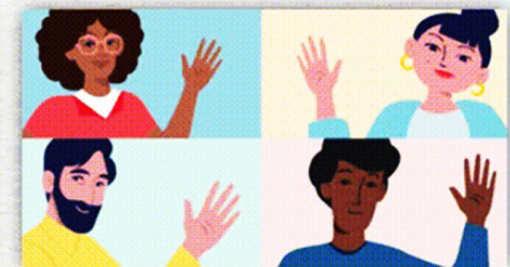


AMC 10 Combinatorics Questions - Year wise

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American Mathematics contest 10 (AMC 10) - Combinatorics problems

Try these AMC 10 Combinatorics Questions and check your knowledge

AMC 10A, 2020, Problem 9

A single bench section at a school event can hold either 7 adults or 11 children. When N bench sections are connected end to end, an equal number of adults and children seated together will occupy all the bench space. What is the least possible positive integer value of N ?

- (A) 9 (B) 18 (C) 27 (D) 36 (E) 77

AMC 10A, 2020, Problem 15

A positive integer divisor of $12!$ is chosen at random. The probability that the divisor chosen is a perfect square can be expressed as $\frac{m}{n}$, where m and n are relatively prime positive integers. What is $m + n$?

- (A) 3 (B) 5 (C) 12 (D) 18 (E) 23

AMC 10A, 2019, Problem 14

For a set of four distinct lines in a plane, there are exactly N distinct points that lie on two or more of the lines. What is the sum of all possible values of N ?

- (A) 14 (B) 16 (C) 18 (D) 19 (E) 21

AMC 10A, 2019, Problem 17

A child builds towers using identically shaped cubes of different colors. How many different towers with a height 8 cubes can the child build with 2 red cubes, 3 blue cubes, and 4 green cubes? (One cube will be left out.)

- (A) 24 (B) 288 (C) 312 (D) 1,260 (E) 40,320

AMC 10A, 2019, Problem 20

The numbers $1, 2, \dots, 9$ are randomly placed into the 9 squares of a 3×3 grid. Each square gets one number, and each of the numbers is used once. What is the probability that the sum of the numbers in each row and each column is odd?

- (A) $\frac{1}{21}$ (B) $\frac{1}{4}$ (C) $\frac{5}{63}$ (D) $\frac{2}{21}$ (E) $\frac{1}{7}$

AMC 10A, 2018, Problem 4

How many ways can a student schedule 3 mathematics courses -- algebra, geometry, and number theory -- in a 6-period day if no two mathematics courses can be taken in consecutive periods? (What courses the student takes during the other 3 periods is of no concern here.)

- (A) 3 (B) 6 (C) 12 (D) 18 (E) 24