Bergen County Math League

Calculators Permitted

Good Luck to You

BCML

Good Luck to All

Contest #1   2022-2023   12 minutes   Questions 1 & 2

1-1.   In a twelve-team bowling league, if every team plays every other team four times during the season, how many games must be scheduled?

1-2.   A function f satisfies $f(1) = 1, f(2) = 3$, and, for all positive integers $n \geq 3, f(n) = 2f(n-1) - f(n-2)$. Find the numerical value of $f(100)$.

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Contest #1   2022-2023   12 minutes   Questions 3 & 4

1-3.   The length of a diagonal of a cube is numerically equal to its volume. What is the side length of the cube?

1-4.   The lengths of the hypotenuse and one of the legs of a right triangle are respectively 20 and 10. If the trisectors of the right angle intersect the hypotenuse at points X and Y, find the length of $\overline{XY}$.

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Contest #1   2022-2023   12 minutes   Questions 5 & 6

1-5.   The three-digit base ten numeral ABC represents the number x, and the three-digit base ten numeral CBA represents the number y. If $x + y = 827$, find the digit B.

1-6.   The legs of a right triangle have integral lengths. The area of the triangle is 150. From a point on the hypotenuse, perpendiculars are drawn to the legs. The lengths of these perpendiculars are 3 and 16. Find the length of the shorter leg of the right triangle.