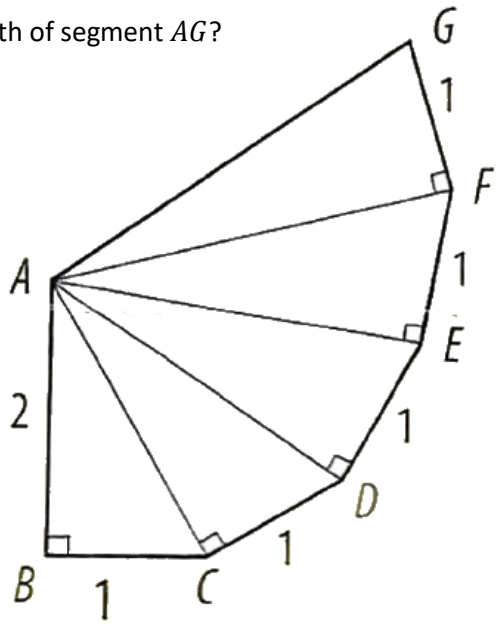
Bergen County Math League

NO Calculators Permitted

Good Luck to You **Good Luck to All**

Contest #2 **2023-2024** **12 minutes** **Questions 1 & 2**

2-1. What is the length of segment AG?



2-2. Find all real values of x for which S is undefined if $S = \left(\frac{x-1}{x+3}\right) \div \left(\frac{x-4}{x-2-\frac{3}{x}}\right)$.

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Contest #2 **2023-2024** **12 minutes** **Questions 3 & 4**

2-3. Find the ordered pair of integers (x, y) which satisfies: $2^{2x} - 3^{2y} = 55$.

2-4. Each side of ΔDEF is perpendicular to a different one of the angle bisectors of ΔABC, **and** the vertices of ΔDEF lie on the sides of ΔABC, with D on $\overline{AC}$. If $AB = 8$ and the perimeter of ΔABC is 24, find CD.

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Contest #2 **2023-2024** **12 minutes** **Questions 5 & 6**

2-5. If I had as many again, half as many again, and two and a half more, I would have 20 coins in my hand. How many coins have I in my hand?

2-6. You are given four identical pieces of chain, each three links in length. If it costs $5.00 to open a link and $6.00 to close a link, what is the minimum it costs, in dollars, to join all twelve links together into a single “circle”?