

Bergen County Math League

NO Calculators Permitted

Good Luck to You



Good Luck to All

Contest #4

2025-2026 12 minutes

Questions 1 & 2

4-1. What is the smallest integer n such that $n + (n + 1) + (n + 2) + (n + 3) > 15$ and the product $(n + 2)(n + 3)$ has digits n and $n + 1$?

4-2. What are all values of x that satisfy $\sqrt{\frac{4x+5}{5x+4}} + \sqrt{\frac{5x+4}{4x+5}} = \frac{13}{6}$?

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Questions 3 & 4

4-3. If $268 = 49a + 7b + c$, where a, b , and c are integers, each between 0 and 6 inclusive, what is the value of b ?

4-4. What are all values of θ , in radians, with $0 \leq \theta \leq \frac{\pi}{2}$, that satisfy

$$2 \cos \theta \sin^5 \theta - 2 \cos^5 \theta \sin \theta = -\frac{1}{4}?$$

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Contest #1

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Questions 5 & 6

4-5. What is the simplified value of $\log_2 \left(\log_2 \sqrt{\sqrt{\sqrt{2}}} \right)$?

4-6. Trapezoid $ABCD$ is inscribed in a circle so that base \overline{AD} is a diameter of the circle. If $AB = 2$ and $AC = 4$, what is BC ?