

2015 Turkmenistan National Math Olympiadwww.artofproblemsolving.com/community/c255426

by shmm

1 Solve : $y(x + y)^2 = 9$; $y(x^3 - y^3) = 7$

2 Find $\lim_{n \rightarrow \infty} (\sum_{i=0}^n \frac{1}{n+i})$

3 Find the sum : $C_1^n - \frac{1}{3} \cdot C_3^n + \frac{1}{9} \cdot C_5^n - \frac{1}{27} \cdot C_9^n + \dots$

4 Find the max and minimum without using dervivate: $\sqrt{x} + 4 \cdot \sqrt{\frac{1}{2} - x}$
