

PROBLEM SOLVING/DOUBT CLEARING SESSION-1

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PROBLEMS

1. Find the value of P ,
if

$$P = \frac{x+1}{xy+x+1} + \frac{y+1}{yz+y+1} + \frac{z+1}{zx+z+1}$$

and $xyz = 1$.

2. How many binary strings of length 10 neither contains consecutively three zeroes nor contains consecutively three ones?

3. [Combinatorial Argument or otherwise] Prove that $\binom{n}{2} = 3\binom{n+1}{4}$.

[Solve this in problem using the above problem] Find all the solutions of

$$\sum_{k=3}^x \binom{k}{2} \leq 168$$
