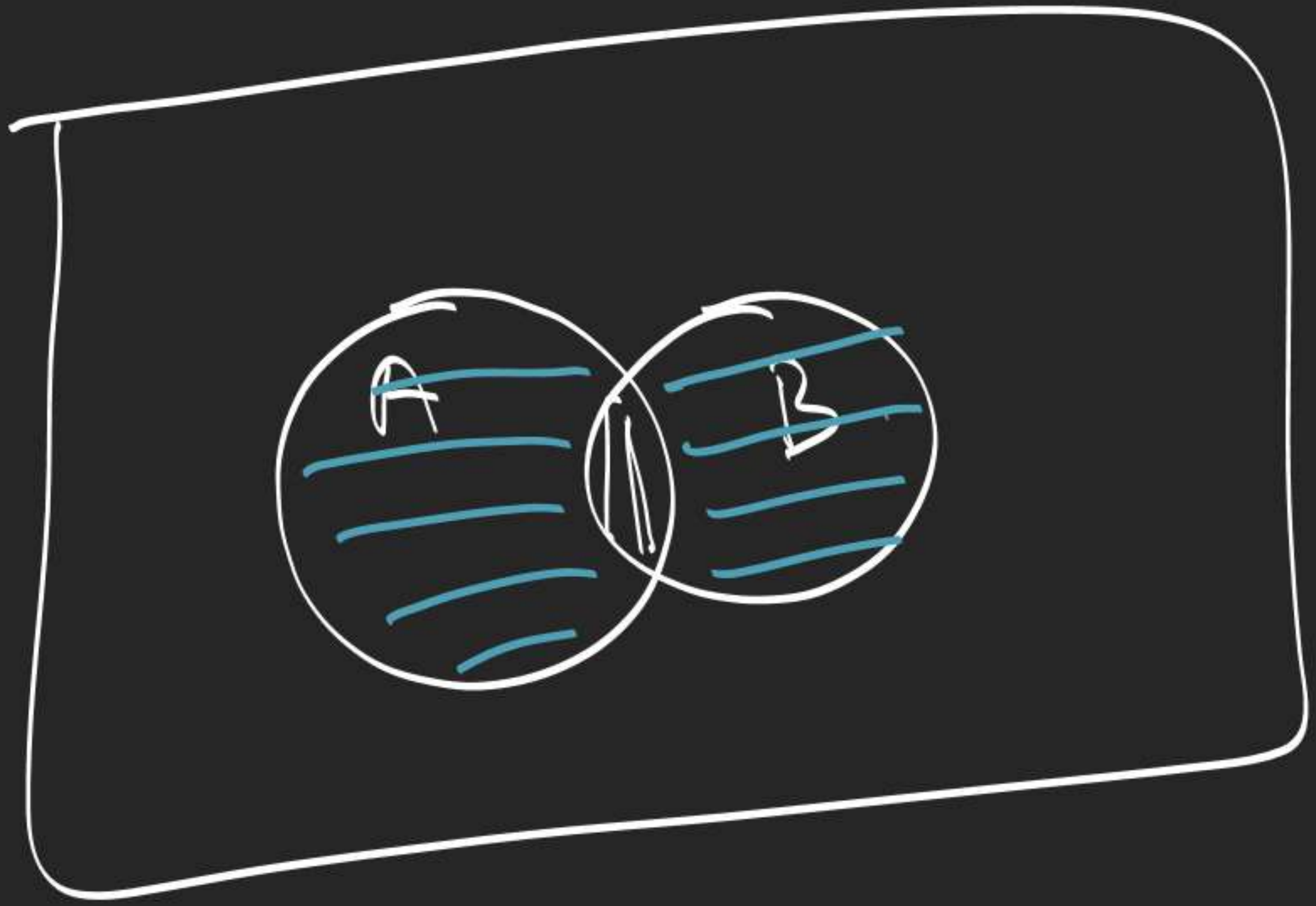
Nishant Jindal



$n(A \cup B)$

$= n(A) + n(B) - n(A \cap B)$

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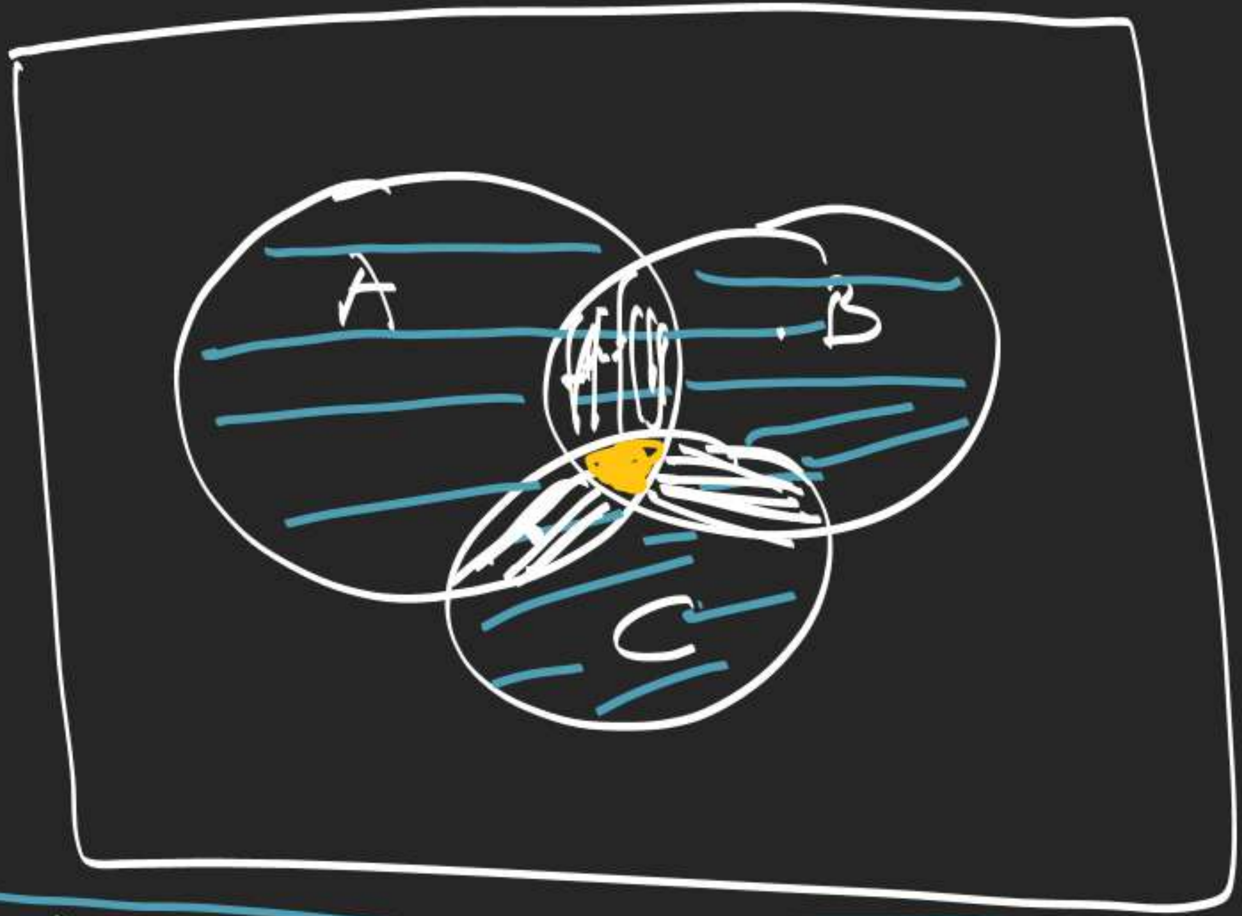

no. of elements belonging to atleast one set of A, B, C.

$$n(A\cup B\cup C) = n(A)+n(B)+n(C)-\left(n(A\cap B)+n(B\cap C)+n(C\cap A)\right) + n(A\cap B\cap C).$$

= Exactly 1 set + Exactly 2 set + Exactly 3 sets

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$$\sum\sum\sum \frac{1}{3^i}\frac{1}{3^j}\frac{1}{3^k}$$

$i \neq j \neq k$. Loney .

Ex-27 (16-25)

$\sum n(A) - 2n(A\cap B\cap C)$

$$\left(1+\frac{1}{3}+\frac{1}{3^2}+\cdots\infty\right)^3 - n(A\cup B\cup C)$$

$A \to i=j$.

$B \to j=k$.

$C \to k=i$.

$$3\left(\left(\frac{1}{3^0}\right)^2+\left(\frac{1}{3^1}\right)^2+\left(\frac{1}{3^2}\right)^2+\cdots\infty\right)\left(\frac{1}{3^0}+\frac{1}{3^1}+\frac{1}{3^2}+\cdots\infty\right)$$

$$-2\left(\left(\frac{1}{3^0}\right)^3+\left(\frac{1}{3^1}\right)^3+\left(\frac{1}{3^2}\right)^3+\cdots\infty\right)$$