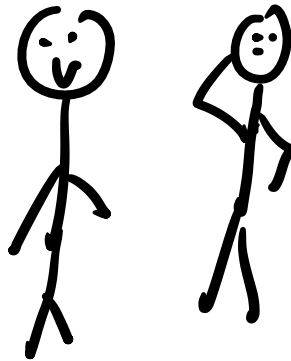


Permutation & Combination

Decision making

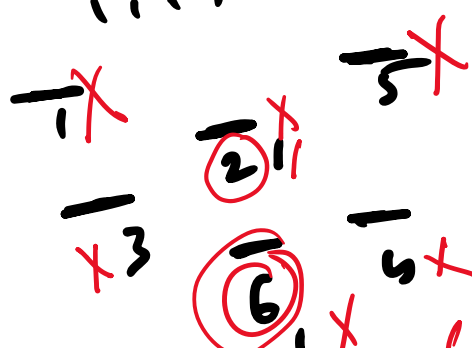
Openliner / Barbie

screen



5 funds?

Barbie



90623
95123..

xxx

Comb

xxxx

xyxx



10 men 6hr
20 men 12hr

20 days
??

10 → 5

fallacy??

Present → Efficiency is same





Prerunt → Efficiency is same ^

Permute Combine

$5C3$



Juga badal → Melawing Badal (P)

(P)

Juga badal → no clue → (C)

(C)

Zuhrah Tentu Stay / football / Nakh

16 → 11 → 4

(C)

$$\begin{array}{r} 123 \\ - \\ 321 \\ \hline 251 \end{array}$$
 (P)

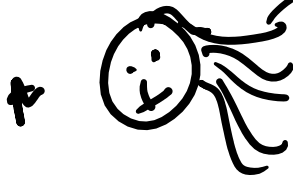


(24)

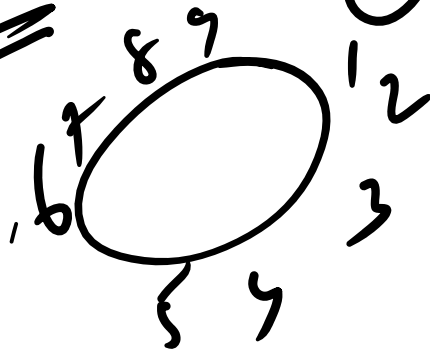
$$\begin{array}{l} 24 \\ \hline 24C5 \end{array}$$

Selection

(1) (2) (3) (4) (5)



FIFO



$$\frac{43653!}{43654!} \approx \frac{1}{43653}$$

2! - 2/2

(P) (P) (P)

$$\frac{2!}{3!} = \frac{2}{1 \cdot 2 \cdot 3} \quad \text{⑤} - \text{⑤} \quad 5!$$

$$5 \rightarrow 4$$

$$\infty + \infty \rightarrow 2\infty \quad \times \quad \infty$$

$$\infty - \infty \rightarrow 0 \quad \neq \quad \infty \quad \neq \quad \text{undefined}$$

Number of P/C

$$100! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 10$$

2's highest power? $\frac{100}{2} = 50$
 $\frac{50}{2} = 25$
 $\frac{25}{2} = 12$
 $\frac{12}{2} = 6$
 $\frac{6}{2} = 3$
 $\frac{3}{2} = 1$
 $\frac{1}{2} = 0$

How many zeros at the end?

$$\left[\frac{100}{2} \right] + \left[\frac{100}{2^2} \right] + \left[\frac{100}{2^3} \right] + \left[\frac{100}{2^4} \right] + \left[\frac{100}{2^5} \right] + \left[\frac{100}{2^6} \right] + \left[\frac{100}{2^7} \right]$$

$$= 50 + 25 + 12 + 6 + 3 + 1$$

92

\dots
 $= \underline{97}$ $100! - 1 \cdot 2 \dots 100$ ~~$\frac{100!}{27}$~~
 $100! \rightarrow \underline{2}$ $\underline{2}^{97}$

$\frac{100}{3} + \frac{100}{9} + \frac{100}{27} + \frac{100}{81}$ $\frac{1}{3} \rightarrow \underline{3}$

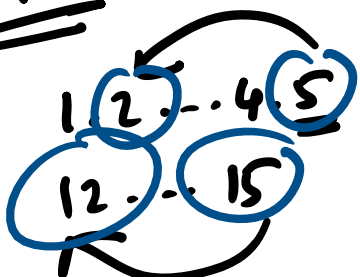
$\rightarrow 33 + 11 + 3 + 1$

$\rightarrow \underline{48}$

last term \rightarrow

~~$100!$~~
 $23!$
 $= \underline{2} \cdot \underline{5} \dots 10 \dots \frac{12 \cdot 15}{20 \cdot 22 \dots}$
 $= 0000$

Zeros
 $\underline{18!} \cdot \underline{2}$ $\underline{20!} \cdot \underline{3}$ $\underline{22!} \cdot \underline{3}$ $\underline{25!} \cdot \underline{5 \times 5}$



$\underline{20}$ $\underline{22}$ $\underline{25}$

5 is the number here
 of a zero...

22 → 1, 2, 5, 15, 20, 22

$$\binom{22}{5} + \binom{22}{5 \times 2} + \binom{22}{5 \times 3}$$

⇒ 4

$$100! \rightarrow \left(\binom{100}{5} + \binom{100}{5 \times 2} \right)$$

20 + 4 → 24 terms

@ the end...

$n P_3$ is things that
 or at a time... $n C_3$
 $\frac{n!}{(n-3)!}$ vs $\frac{n!}{3!(n-3)!}$
 $5 P_3 \neq 5 C_3$
 CW
 RW
 89 11 ...

$\frac{n!}{(n-3)!}$ $\frac{n!}{3!(n-3)!}$

$\frac{60}{12} \rightarrow 5$
 $5 \times 10 \rightarrow 50$
 $11M 50min \Rightarrow 1.50 \text{ hr}$

A circular diagram with numbers 1-12 around the perimeter. Inside, a path is marked with circled numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. A central point is labeled "small".

To the right, a diagram shows a sequence of numbers: 6, 8, 9, 11, 10, 7, 5, 2, 3, 4. Below it is the word "SUM".

Another diagram shows a circle with numbers 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 around it. Inside, a path is marked with circled numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

$11 \times 5 \rightarrow 10min$

A tree diagram with root node 1, branching to 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. Node 2 is circled and has an arrow pointing to it with the text "x5 -> 10min".

Below the tree diagram, the text "Jhokh!" and "NET -> See main/stand" are written.

$\frac{151}{\#}$
 $\frac{1}{10}$
 $\frac{1}{9}$

$(56)P_{r+6} = 308w$
 $(54)P_{r+3}$

$(56)P_{r+4} = \frac{30800}{10}$
 $(54)P_{r+3}$

$(r+4) + 1 = 10$

$rP_2 = ?$
 $(1) (2) (3)$
 $\frac{55}{56}$
 $\frac{55}{56}$

$$S_4 = (r+4) + 1 = 10$$

$$r = 4$$

u, p, z

$$\frac{4!}{2!} \rightarrow 4 \times 4 = 16$$

$$= \frac{16 \times 40}{(4+4) - (4+3)} = 80$$

$$\frac{55 - 56}{3080} = 80$$

630

No formula for X

10

9 INSURANCE BALL BLLA LLBA

Vowels are together

IUAEN N S R N E

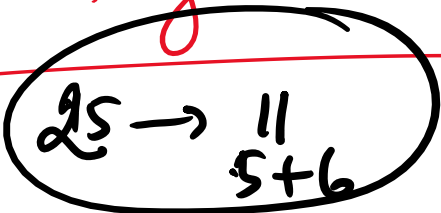
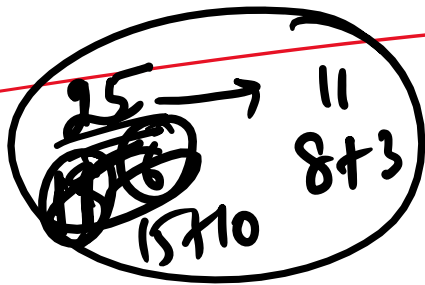
$$\frac{6!}{2!} \times 4! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \cdot 2 \cdot 4$$

⇒

+ X

Jaath Saath ya Aag time

Yaath Saam ya mayi...



$$\begin{aligned}
 & \left({}^{15}C_8 \times {}^{10}C_3 \right) + \left({}^{15}C_5 \times {}^{10}C_6 \right) + \\
 & \quad + \left({}^{15}C_{10} \times {}^{10}C_1 \right) \\
 & {}^{40}C_{22} \times {}^{25}C_5
 \end{aligned}$$