EduBridge

India's leading **Workforce Development Platform** that helps learners in building careers with leading corporates through training & other career-building services.
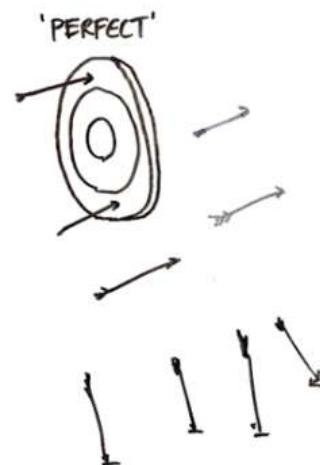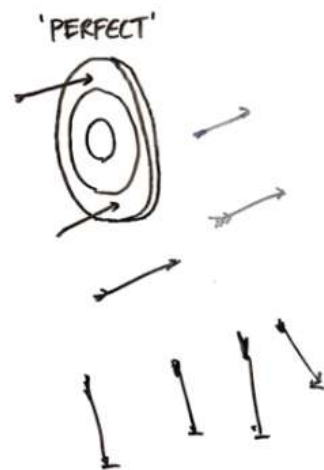
#letslearntoearn

- Practice:
    1. A person ordered 5 pairs of black socks and some pairs of brown socks. The price of a black pair was thrice that of a brown pair while preparing the bill the bill clerk inter-changed the number of black and brown pairs by mistake which increased the bill by 100% what was the number of pair of brown socks in the original order?
    2. Twelve people from a club, by picking lots. One of them will host a dinner for all once in a month. The number of dinners a particular member has to host in one year is?
    3. In a society, it is customary for friends of the same sex to hug and for friends of opposite sex to shake hands when they meet. A group of friends met in a party and there were 24 hand shakers. Which one among the following numbers indicates the possible number of hugs?
    4. There are 5 tasks and 5 persons, Task 1 cannot be assigned to either person 1 or person 2, Task 2 must be assigned to either person-3 or person-4 every person is to be assigned one task, In how many ways can the assignment be done?

'PERFECT'

PRACTICE

- Practice:

5. In how many different ways can the letters of the word 'MATHEMATICS' be arranged so that the vowels always come together?

6. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

7. There are 30 people in a group. If all shake hands with one another , how many handshakes are possible?

8. How many 4-letter words with or without meaning, can be formed out of the letters of the word, 'LOGARITHMS', if repetition of letters is not allowed?

9. Amit has five friends, 3 girls and 2 boys. Amit's wife also has 5 friends, 3 boys, and 2 girls. In how many maximum numbers of different ways can their invite 2 boys and 2 girls such that two of them are Amit's friends and two are his wife's?

'PERFECT'

PRACTICE

Probability

① No of brown pairs $= x$

price of a brown pair $= P$ ⟹ price of a black pair $= 3p$

original bill $= 5 \times 3p + x \times 6p = 15p + xp$

Jian correct bill $= x \times 3p + 5 \times 6p = 3xp + 5p$

incorrect bill is 100%

$8xp + 5p = 2(15p + xp)$

$3x + 5 = 30 + 2x$ ⟹ $x = 25$

② Total dinner $= 12$

probability $= \frac{1}{12}$

Expected number of dinners $= 12 \times \frac{1}{12} = 1$

⑧ $m =$ males

$f =$ females

Handshake $= m \times f = 24$

$(m, f) : (1, 24), (2, 12), (3, 8), (4, 6), (6, 4), (8, 3), (12, 2), (24,$

$Hngs = \binom{m}{2} + C^f_2 = \frac{m(m-1)}{2} + \frac{f(f-1)}{2}$

$(12, 6) : 6 + 15 = 21 \cdot 2$

$(6, 4) : 15 + 6 = 21$. $21 / 31$

$(3, 8) : 3 + 28 = 31$

$(8, 3) : 28 + 3 = 31$

④ step① - Task 2 to person 3/4

step② - Task 1 to person 3,4 or 5

• Task 2 is assigne to 3 : Task 1 go to 4/5

• Task 2 is person 4 : Task 1 go to 3/5

assign the remain 3 to remaining 3 person (3! =6Ways)

$2 \times 2 \times 6 = 24$ ✓

⑤ Total letters 24 (M,A,T,H,E,M,A,T,I,C,S)

vowel : A,E,A,I ⇒ 8 units

arrangement of block & constants : 8!

arrangement within the vowel

A,E,A,I ⇒ $\frac{4!}{2!} = 12$

Total : $8! \times 12 = 483840$

⑥ Total = 7 (O,P,T,I,C,A,L)

vowel : O,I,A (single +4 = 5)

Arrangement of block & constts : 5! = 120

Arrangement within the vowel = 3! = 6

Total arrangment s : $120 \times 6 = 720$

⑧

$P(10,4) = 10 \times 9 \times 8 \times 7 = 5040$

9]

$$_2C^2 \times {}_2C^2 = 1 \times 1 = 1$$

$$_1C^2 \times {}_1C^3 \times {}_1C^3 \times {}_1C^2 = 2 \times 3 \times 3 \times 2 = 36$$

$$_2C^3 \times {}_2C^3 = 3 \times 3 = 9$$

Total : $1 + 36 + 9 = 46$