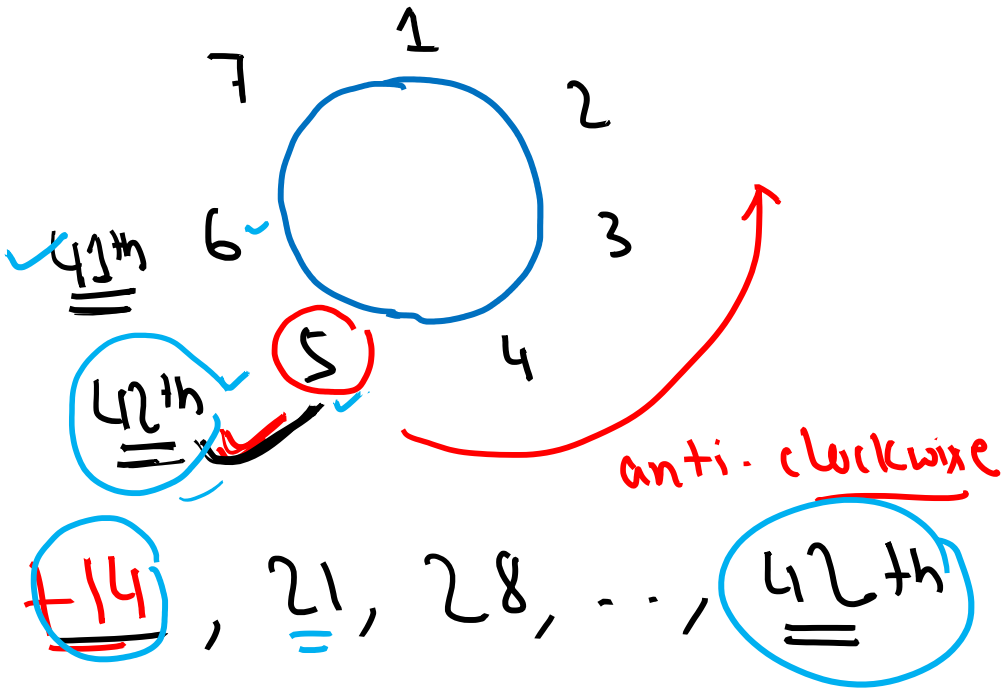
IFAS CSIR NET

FINDING THE X

Aptitude

Q1 Seven chairs numbered 1 to 7 are placed around a round table. Starting from chair number 5, a person keeps going around the table anticlockwise. After crossing 41 chairs, the person will reach the Chair number ?

(1) 1 (2) 3 (3) 5 (4) 7



Ans b X

Q.2 The cities of a country are connected by intercity roads. If a city is directly connected to an odd number of other cities, it is called an "odd city" If a city is directly connected to an even number of cities, then it is called an "even city". The W.O.F.I (impossible)

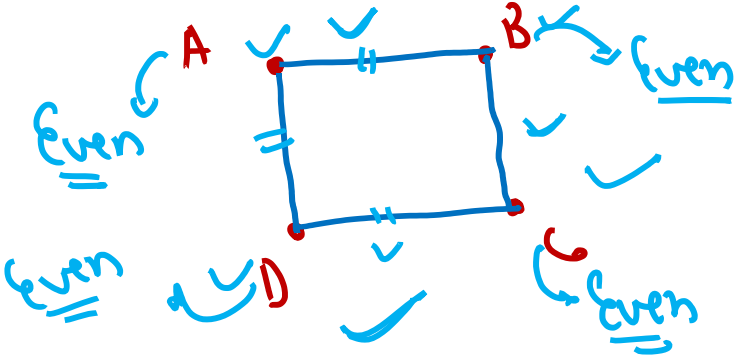
(A) There are even number of odd cities.

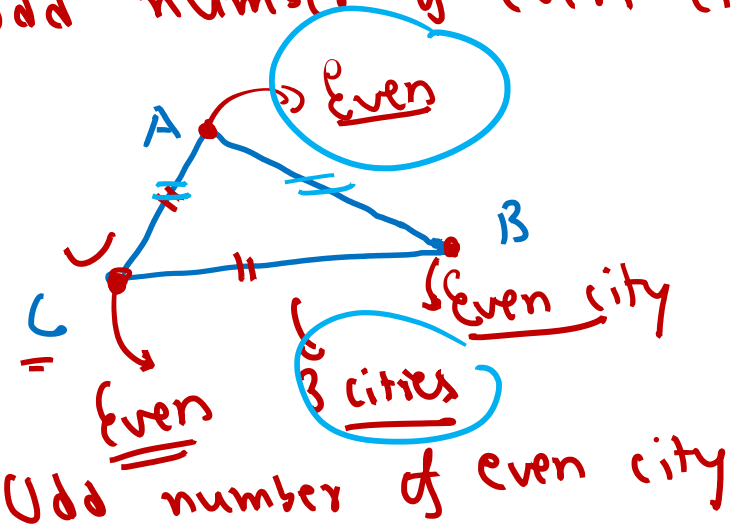
(B) There are odd number of odd cities

(C) There are an even number of even cities.

(D) There are an odd number of even cities.

Even no. Odd cities





Odd number of even city

Finding X

X → variable, Class VI

Satya — 3

Poornima ?? — x
Kuch bhi ho sakta hai.

Unknown

x ??

$x - 3 = 2$ → Simple Equation

$\Rightarrow x = 3 + 2 = 5$

System of Linear equation

$2x + y = 3$ — (1)

$4x - y = 3$

Solve this:

$x = ?$

$y = ?$

$6x = 6$

$\Rightarrow x = 1$

$x = 1$

$y = 1$

$2 + y = 3$

$\Rightarrow y = 3 - 2 = 1$

- mathematical tools

Logically solve

$4x - 2y = 2$ — (1)

$7x - y = 6$ — (2) × 2

$4x - 2y = 2$

$14x - 2y = 12$

$(-)\quad (+)\quad (-)$

$-10x = -10$

$\Rightarrow x = 1$

putting the $x = 1$ in (1)

$4 - 2y = 2$

$\Rightarrow 2y = 4 - 2 = 2$

$\therefore y = 1$

$ax^2 + bx + c = 0$ → Quadratic equation

$x^2 + 2x + 1 = 0$

$a = 1,\ b = 2,\ c = 1$

$x = ??$

Sreedhar Acharya's formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$x^2 + 2x + 1 = 0$, $a = 1$, $b = 2$, $c = 1$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-2 \pm \sqrt{4 - 4.1.1}}{2.1}$$

$$= \frac{-2 \pm 0}{2} = -1$$

$x = -1, -1$

Q.1 A milkman has buffaloes and goats. The number of goats is $\frac{1}{6}$ th of the number of buffaloes. If the total number of buffaloes and goats is 49. Find the number of buffaloes milkman owns

(1) 36 (2) 42 (3) 14 (4) 21

Soln buffaloes: x, goats $= \frac{1}{6} \times x = \frac{x}{6}$

$$\frac{x}{1} + \frac{x}{6} = 49$$

$\Rightarrow \frac{6x+x}{6} = 49$

$\Rightarrow \frac{7x}{6} = 49$

$\Rightarrow x = \frac{6}{7} \times 49 \times 7 = 42$

***

Goats $= \frac{1}{6} \times$ buffaloes

$\Rightarrow \frac{\text{goats}}{\text{buffaloes}} = \frac{1}{6}$

Goats $\rightarrow$ 1 unit, buffaloes $\rightarrow$ 6 units

Total $= 1+6 = 7$ units

$1+6 = 7$ units $\rightarrow$ 49

$\Rightarrow$ 1 unit $\rightarrow$ 7 $\Rightarrow$ 6 units $= 42$

Q.2 (IIIR)

The difference between the squares of the ages (in complete years) of a father and his son is 999. The age of the father when his son was born is

$X^2 - Y^2 = 999$

(1) Can't be determined

(2) 27 yrs

(3) 29 yrs

(4) 31 yrs

30 → 0 → 900

31 → 1 → $31^2 - 1^2$ ≠ 900

$X^2 - Y^2 = 899$

900 − 1

$(30)^2 = 900$

nearest perfect square

⇒ $(30)^2 - (1)^2 = 899$

Q3 The sum of digits of a two digit number is 9. If the fraction formed by taking 9 less than the number as numerator and 9 more than the number as denominator is $\frac{3}{4}$, what is the number?

(1) 36

(2) 63

(3) 45

(4) 54

Q. 4 (CSIR) Three years ago, the difference in the ages of two brothers was 2 years. The sum of their present ages will double in 10 yrs. What is the present age of the elder brother?

X (1) 6 ✓ (2) 11

(3) 7 (4) 9

Present age → 6 + 4 = 10 +20 16 + 14 = 30

+10 +10

(1) 11 + 9 = 20 ✓

↓ +20

Double 40

13) 7 +5 = 12

+10 +10

↓ +20

32

Q.5 (CJIR) A river is 4.1 km wide. A bridge is built across the river. It has $\frac{1}{7}$th of its length on one bank and $\frac{1}{8}$th of its length on another bank. What is the total length of the bridge?

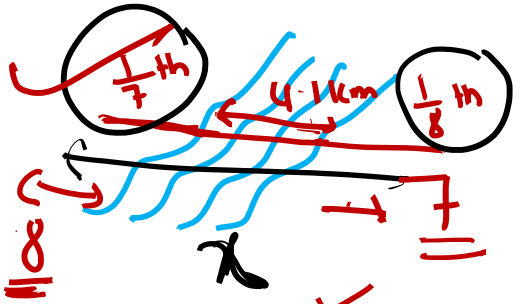
(1) 5.1 km

(2) 5.6 km

(3) 4.9 km

(4) 5.4 km

Total = 56



$$\frac{x}{7} + 4.1 + \frac{x}{8} = x$$

$7 \times 8 = 56$

$\frac{1}{7} \times 56$

$= 8$

$\frac{1}{8} \times 56$

$= 7$

$56 - (8 + 7)$

$= 41$

$41 \rightarrow 4.1$

$56 \rightarrow 5.6$

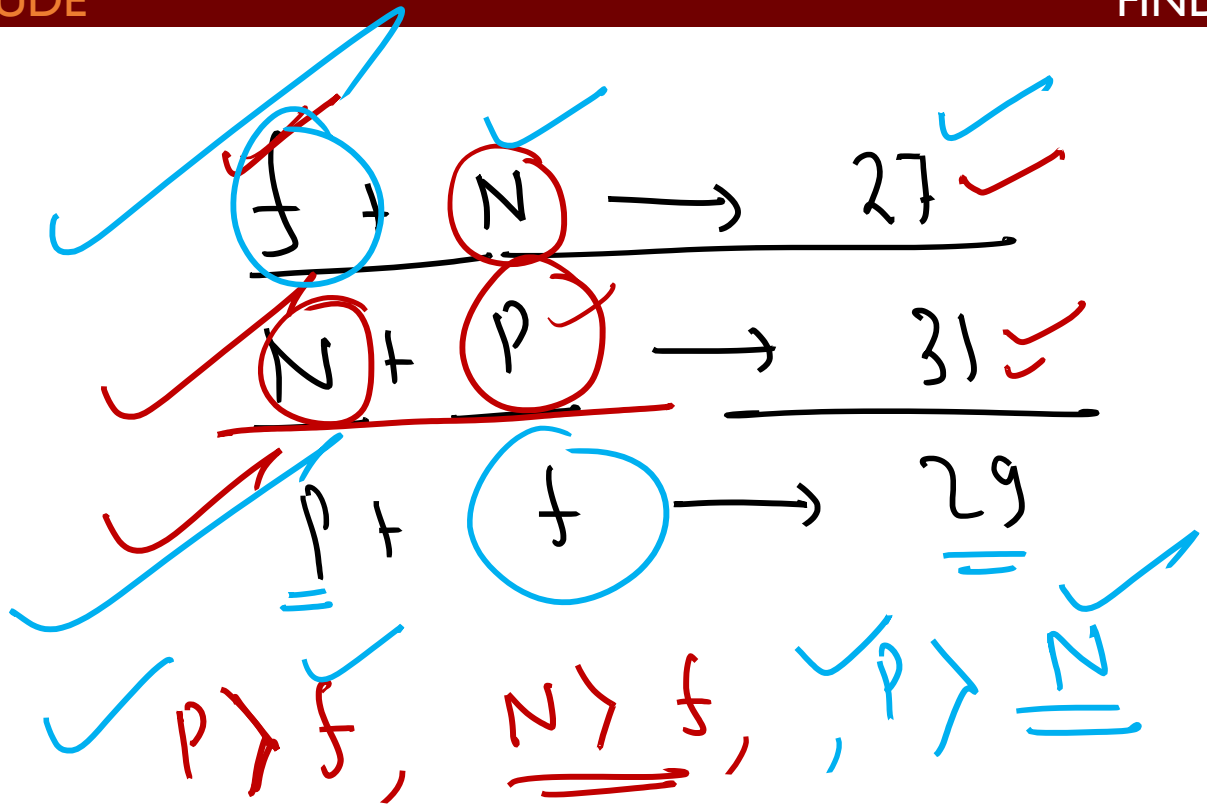
Q6 (CSIR) A shopkeeper sells a file and a notebook for ₹27 to the customer, a notebook and a pen for ₹31 to the second customer. and a pen and file for ₹29 to the third customer. The price of the items are rounded in rupees. Which of the following inference is correct?

(1) The pen is costliest of the three.

(2) The file is " " "

(3) The notebook " " " "

(4) The shopkeeper sold the different items to different customers at different rates.


f + N → 27
N + P → 31
P + f → 29
P > f, N > f, P > N

FINDING THE X

HAPPY LEARNING

THANKS

India's No **1** for NEET, IIT-JAM, GATE and NET Exams

www.ifasonline.com

9172266888