QUANT Maths Tricks

Some Special Tricks

RATIO TRICKS

A : B = 2 : (3)
B : C = 4 : 7

$A_1 : A_2 = 1 : 3$ ✓
$A_2 : A_3 = 2 : 1$ ✓
$A_3 : A_4 = 3 : 2$ ✓
$A_4 : A_5 = 2 : 1$ ✓

$A_1 : A_2 : A_3 : A_4 : A_5$ (in a single line)

Rule

Multiply all the firsts
One right rest left | last all right

(1.2.3.2) : (3.2.3.2) : (3.1.3.2) : (3.1.2.2) : (3.1.2.1)

2 : 6 : 3 : 2 : 1

1:3 A B   2:3 B C   3:4 C D   1:2 D E

(1.3.2.1) : (3.2.3.1) : (3.3.3.1) : (3.3.4.1) : (3.3.4.2)
= 2 : 6 : 9 : 12 : 24

Trick : 2 HCF & LCM clubbed under tricks of Ratio

May come as a long problem

1) Bell ringing together problem
2) Problem on running schedules

Problems

(I) Least number divisible
LCM of a, b, c

(II) Least number which leaves remainder u, v, r → when divided by a, b, c

41/10 → (I)
41/15 → (II)
41/20 → (III)

(ii) ... remainder u, v, r → when divided by a, b, c

(LCM of a, b, c) − K

num, K = (a − u) = (b − v) = (c − r)

Divided by (12, 16, 18) leave a remainder → 5 every time

11/2 → 1

LCM of 12, 16, 18 → 144

2 | 12, 16, 18
2 | 6, 8, 9 → 4, 16, 3... (2, 8, 3 / 1, 4, 3)

least number = 144 + 5 = 149

(iii) Leaves NO Remainder

LCM of a, b, c

(Least no of n digit + LCM − Remainder)

→ find the least perfect square which is divisible by 2, 3, 4, 5, 6.

LCM → (2, 3, 4, 5, 6) → 60

$\sqrt{900} = 30$

60 × 4 240, 300, 360

60 × 6 = 360

3.5.60 ⇒ 15.60 → 900

Ans → 900

Least → LCM
Largest → HCF } Then

36, 42, 54 Largest number divisible ...

HCF of 36) 42 (1
36

6) 54 (9
54

HCF of 36) 42 (1
36
6) 36 (6
36
0

6) 54 (9
54
0

→ 6

Answer : 2

36 = 2·2·3·3 (3, 2 circled)
54 = 2·3·3·3
42 = 7·2·3

→ 2 × 3 => 6

21/4 ← 1

Double Remainder Problem..

If divided by 575 Remainder → 5
" " 386 " → 6

575 − 5 = 570 Double
386 − 6 = 380

190 is the HCF

HCF (570, 380)
3 , 2

Find the largest number which divides
93, 131, 188 → leaving the same Remainder..

Time intervals Based questions..

Remainder → r

93 − r, 131 − r, 188 − r
1 2 3

(2 − 1) & (3 − 2)

Take 2 @ a time..

(131 − r) − (93 − r) & (188 − r) − (131 − r)

$(131-r)-(93-r)$ & $(180-\ldots)$ ...

→ 38   57

HCF 38, 57 → 19

Time Interval Problem

6 bells ring @ intervals. 2, 4, 6, 8, 10, 12 seconds.. They started ringing simultaneously. In 30 min how many times they ring together?

LCM 2, 4, 6, 8, 10, 12 → 120

2 min $\left(\frac{30}{2}+1\right)$ → 16

$\left(\frac{30}{x}+1\right)$ x → LCM of intervals..

Percentage Short cut System

70 → 20% ↑ → 70 × 1.2   (1+0.2)
30% ↓ → 70 × 0.7   (1−0.3)

70 → 35% ↑ → 70 × 1.35
39% ↓ → 70 × (0.61)

Multiple times Percentage change

100   10% ↑ 20% ↑ 15% ↑ 20% ↓ 15% ↓

100 → 100 × 1.1 × 1.2 × 1.15 × 0.8 × 0.85

... to change it 5 times

100 → 100 × 1.1 × 1.2 × 1.15 × 0.8 × 0.85

13.25% no need to change it 5 times..

A value changes 7 times

Find % change of the value???

100 → 200 100%

600%

1 len men times = %

4go → 29.312 % ↑

9062395723

4go → (1.29312) 01.37% ↑

100 × 1.0137

75
1.15
1.01

10.00
10% → 1.10
22 → 1.22
01% → 1.01
01.23% → 1.0123
05% → 1.05

1.345% ↓
1.01345

1.00000
0.01345
0.98655

Undone home cost Marriag

Sc/ Host / Ru 60

20 → 60

(40)

* Committee ×

** Phone / anything new *

*** 2nd hand car / home Mini ✓

PIA