LCM & HCF

Md. Labu Miah

Instructor, P2A

Multiple → গুণিতক

12) 9 (

12 → 12, 24, 36, 48, 60, 72, 84, 96, 108, 120 . . . . .

18 → 18, 36, 54, 72, 108, 126 . . . . . .

common multiple → 36, 72, 108, ...

Least common multiple → 36

লঘিষ্ঠ গুণিতক → LCM = 36

36 × 4 = 144

72

108

Factor → ഘടകങ്ങൾ

12 → 1, 2, 3, 4, 6, 12

18 → 1, 2, 3, 6, 9, 18

common factors → 1, 2, 3, 6

Highest ie HCF → 6 ⇒ 6

LCM of 12 & 18 is 36

HCF " " " " 6

$36 \times 6 = 216$

$12 \times 18 = 216$

product of two numbers = product of this HCF and LCM

$$N_1 \times N_2 = HCF \times LCM$$

$$N_1 = \frac{HCF \times LCM}{N_2}$$

HCF of 12, 18 → 6

LCM of 12, 18 → 36

Ratio of 12, 18 → 12 : 18 = 2 : 3

LCM → $(2 \times 3) \times 6 = 36$

HCF → $\frac{36}{2 \times 3} = 6$

$2 \times 3 = 6$

$6 \times 2 = 12$

$6 \times 3 = 18$

$\frac{36}{2} = 18$

$\frac{36}{3} = 12$

a) 4 b) 6 c) 12 d) 36 e) None of these

Q1: Find the highest common factor of 36 and 84. [Pubali Bank (SO)-23]

12

36 → 1, 2, 3, 4, 6, 9, 12, 18, 36

84 → 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84

$36 = 2 \times 2 \times 3 \times 3$

$84 = 2 \times 2 \times 3 \times 7$

HCF → $2 \times 2 \times 3$

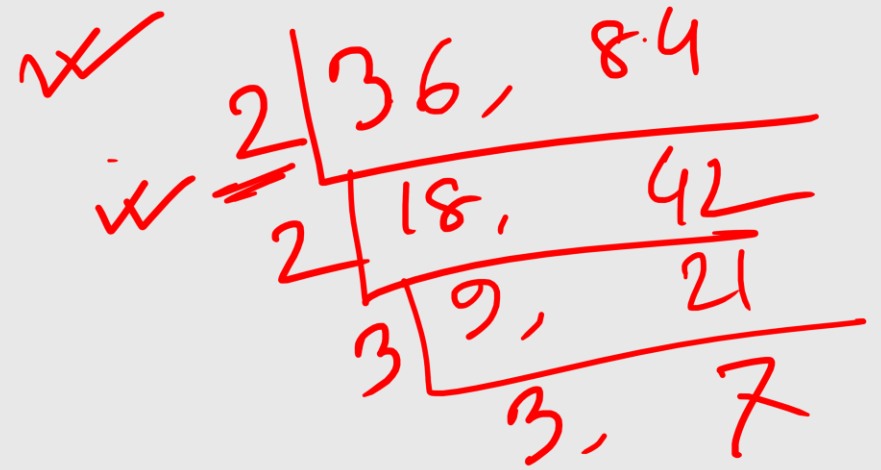
$= 12$

2	36
2	18
3	9
	3

2	84
2	42
3	21
	7

(36) 84 (2
72
(12) 36 (3
36
0

HCF ⇒ 12



HCF ⇒ 2 × 2 × 3 = 12

HCF

3 | 12, 15, 18, 36

4, 5, 6, 12

LCM →

2 | 12, 15, 18, 36

2 | 6, 15, 9, 18

3 | 3, 15, 9, 9

1, 5, 3, 3

Q2: What is the H.C.F of the numbers 36, 54 and 90? [Pubali Bank (SO)-13]

a) 6

b) 9

c) 12

d) 18

Q3: The greatest number that exactly divides 105, 1001 and 2436 is:

[AD-14]

a) 3

b) 7

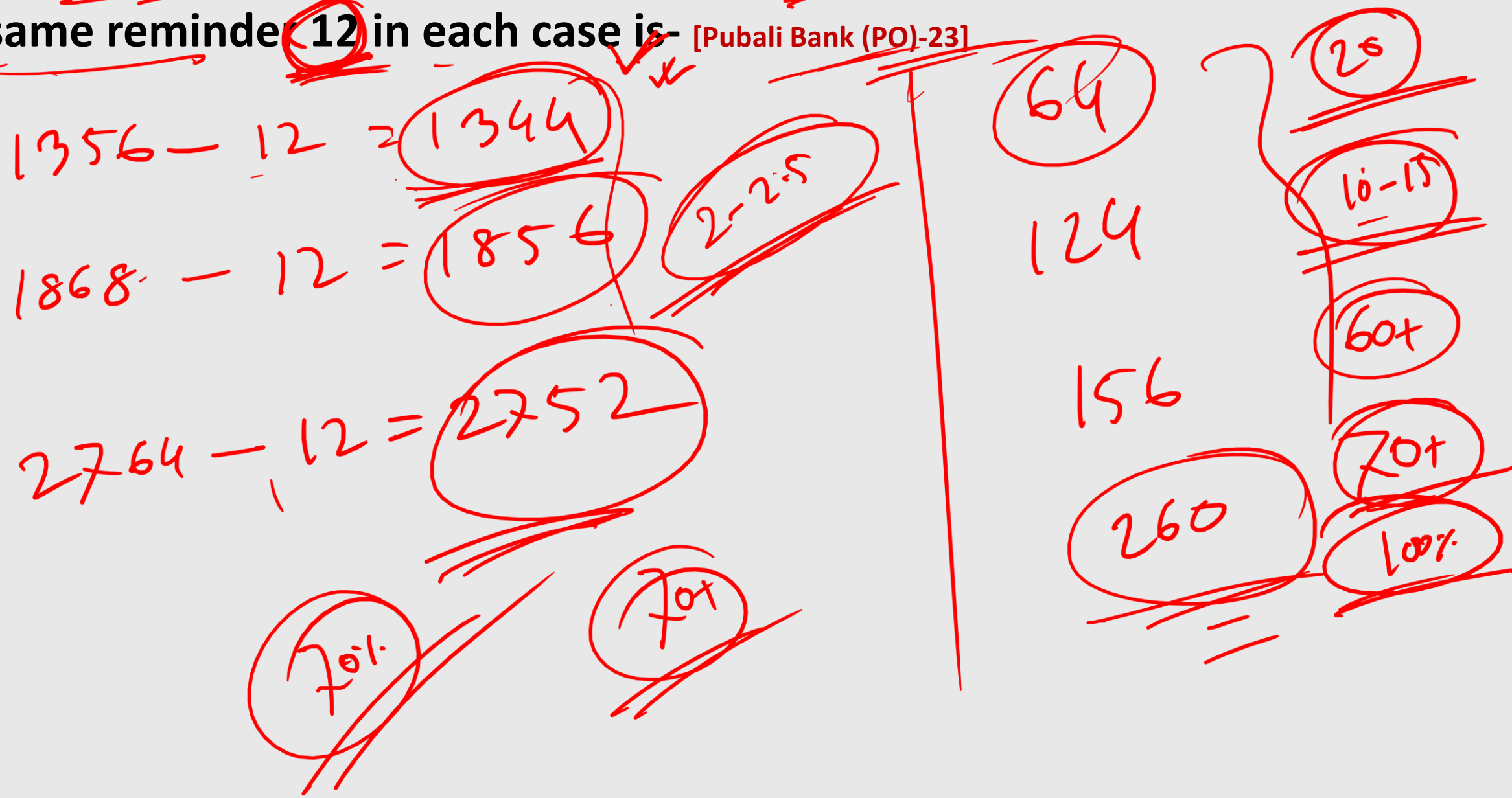
c) 11 ✗

d) 21 ✗

105) 1001 (9
945
56) 105 (1
56
49) 56 (1
49
7) 49 (7
49
0

7) 2436 (348
21
33
28
56
56
0

Q4: The greatest number which can divided 1356, 1868 and 2764 leaving the same reminder 12 in each case is- [Pubali Bank (PO)-23]



Q5: Find the greatest number that will divide 43, 91 and 183 so as to leave the same remainder in each case? [Pubali Bank (TAT)-17]

$91 - 43 \rightarrow 48$

$183 - 43 \rightarrow 140$

$183 - 91 \rightarrow 92$

HCF of 48, 140, 92 is 4

4
12 | 48
5 | 7
9
13

×

31, 41, 21

5) 31 (6
30
1

5) 41 (8
40
1

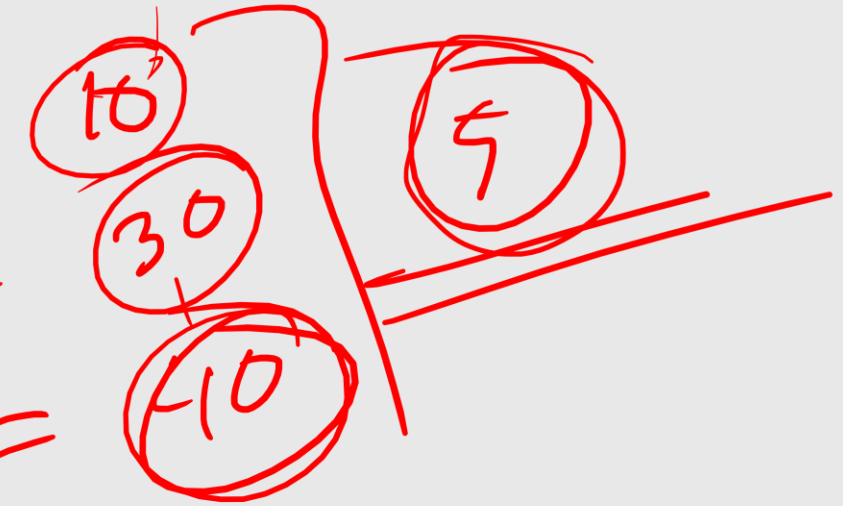
5) 21 (14
20
1

31, 41, 21

41 - 31 = 10

41 - 21 = 30

21 - 31 = -10



Q6: Find the largest number which divides 62, 132 and 237 to leave the same remainder in each case. [SPCBL (Off)-23] (H.W)

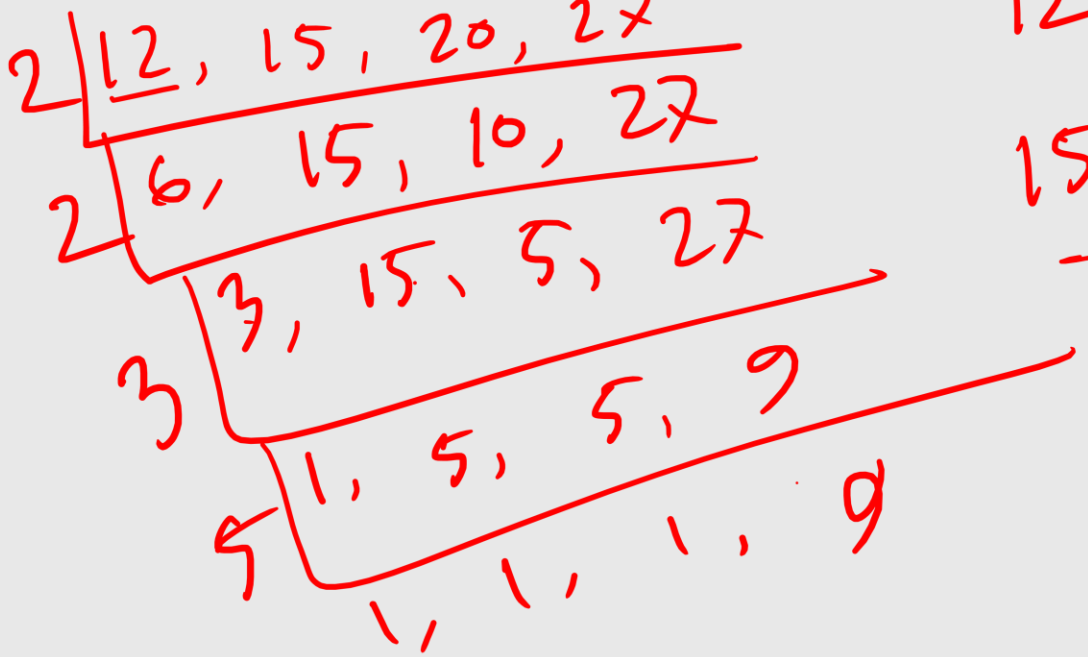
Q7: Find the least number exactly divisible by 12, 15, 20 and 27.

a) 540

b) 430

c) 320

d) 300



12 → 12, 24, 36

15 → 15, 30, 45

Q8: What is the smallest number of apples that can be distributed equally (without cutting any apple) among 6, 10, 14 and 18 boys? [BB (AD) 22]

LCM

6, 10, 14, 18

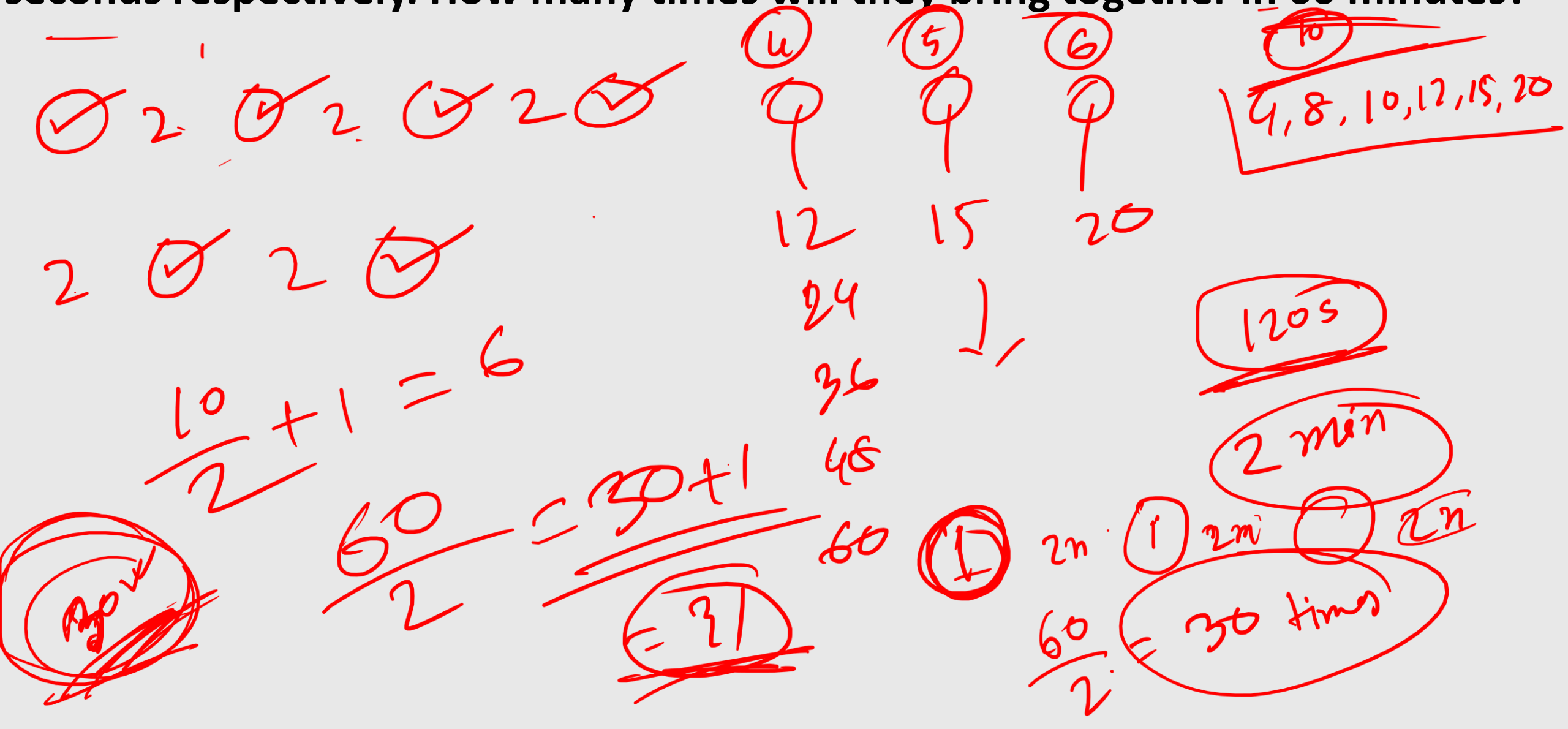
6 → 6, 12, 18

10 → 10, 20, 30, 40

14 → 14, 28, 42, 56

18 → 18, 36, 54 —

Q9: Six bells start ringing together and ring at intervals of 4, 8, 10, 12, 15 and 20 seconds respectively. How many times will they bring together in 60 minutes?



Q10: Which is the larger between two numbers if they are in the ratio of 6:13 and their least common multiple is 312? [Comb Bank (SO)-23 (21 Based)]

$\frac{312}{6} = 52$

$\frac{312}{13} = 24$

Let, the number be $6x, 13x$

Lcm of $6x, 13x \rightarrow 78x$

ATQ, $78x = 312$

$x = \frac{312}{78} = 4$

$6 \times 4 = 24$

$13 \times 4 = 52$ ✓

Q11: The ratio of two numbers is 3:4 and their HCF is 4. Their LCM is: [Pubali (JO)-23]

$(3 \times 4) \times 4 = 48$

Q12: The ratio between two numbers is 3:4 and their least common multiple is 180. What is the first number?

$45 : 60 = 3 : 4$

$\frac{180}{3} = 60$

$60 : 45 = 4 : 3$

$\frac{180}{4} =$ 45

Q13: Find the largest number of five digits which, when divided by 16, 24, 30 or 36, leaves the same remainder 10 in each case.

BB (AD) - 2025

LCM of 16, 24, 30, 36 → 720

720

1440

2160

2880

720) 99999 (138

720

2799

2160

639

5760

639

5

4 qn.

99999 - 639 ⇒ 99360 + 10 ⇒

99370

99360

99350

99340

99370

Ans

Thank You