

Hcf & LCM

①

HCF × LCM = a × b

LCM = 120

40, 60

$$\begin{array}{r} 10 \overline{) 40, 60} \\ \underline{40, 60} \\ 20, 60 \\ \underline{20, 60} \\ 40, 60 \\ \underline{40, 60} \\ 20, 60 \\ \underline{20, 60} \\ 40, 60 \\ \underline{40, 60} \\ 20, 60 \end{array}$$

HCF

40 = 60 (1)  
40  
20 | 40 (2)  
40  
6

HCF

→ HCF = 20  
LCM = 120

906239523

#

a, b, c ..

LCM = a × b × c × abc

SSC 2021

P = 2<sup>3</sup> × 3<sup>10</sup> × 5

Q = 2<sup>5</sup> × 3<sup>1</sup> × 7

HCF = 2<sup>3</sup> × 3<sup>1</sup> = 24

7, 25 → factor  
HCF common

#

HCF is → 8

One number & 8, 16

LCM ⇒

LCM × HCF = 8 × 16  
1 × 8 = 8 × 16  
1 × 16

$$LCM = 8 \times 16 = 128$$

# Note formula of  $\text{LCM}$  is only applicable for 2 numbers.

Product = 117  
 $LCM = ?$   
Note: Co-prime means  $HCF = 1$

→ Co-prime (coprima)  
 2, 3  
 $HCF \Rightarrow 1$   
 $LCM = 2 \times 3 = 6$   
 4, 5  
 $HCF \Rightarrow 1$   
 $LCM = 4 \times 5 = 20$

a.  $117 = LCM \times HCF$   
 $117 = LCM \times 1$   
 $117 = LCM$  ✓

1, 117  
 13, 9

1, 2, 3, 4, 5, 6, 10, 15, 60

2 | 60  
 2 | 30  
 3 | 15  
 3 | 5  
 5

1, 60  
 2, 15, 5  
 4, 6, 10  
 15

$\sqrt{2} | 104$   
 $\sqrt{2} | 52$   
 $\sqrt{2} | 26$   
 13

3 | 45  
 3 | 15  
 5

1, 45  
 3, 15  
 5

→ 104

1, 104  
 2, 13

$$\frac{3,15}{5,9}$$

$$\begin{array}{r} 2 \overline{) 178} \\ \underline{356} \\ 178 \\ \underline{356} \\ 0 \end{array}$$

$$\begin{array}{r} 1,107 \\ 2,13 \\ \hline 26,4,8,52 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1000} \\ \underline{2000} \\ 2 \overline{) 500} \\ \underline{1000} \\ 2 \overline{) 250} \\ \underline{500} \\ 5 \overline{) 125} \\ \underline{250} \\ 5 \overline{) 25} \\ \underline{50} \\ 5 \end{array}$$

$$\begin{array}{r} \textcircled{2} \textcircled{2} \textcircled{2} \textcircled{5} \textcircled{5} \textcircled{5} \\ \hline - 1,1000 \\ \hline - 2,500 \\ \hline - 8,125 \\ \hline - 4,250 \\ \hline - 10,100 \\ \hline - 40,25 \\ \hline - 200,5 \end{array}$$

(14)

2, 4

HCF = 40  
LCM

$$\begin{array}{l} a.y = 40 \times LCM \\ \frac{24}{40} = LCM \end{array}$$

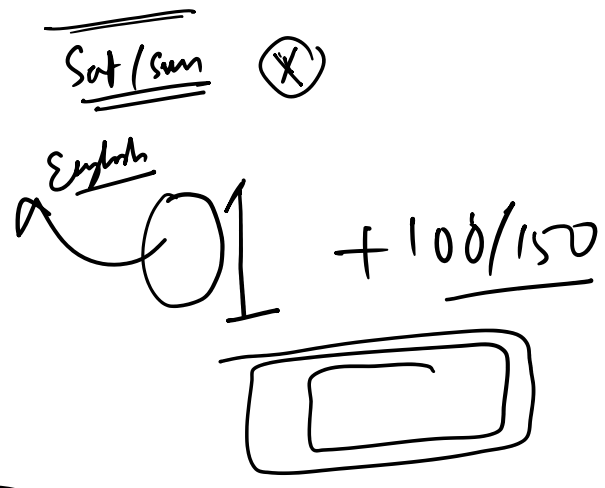
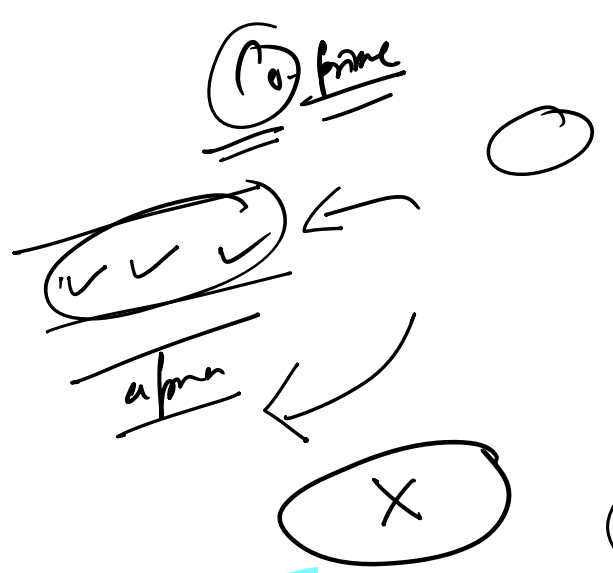
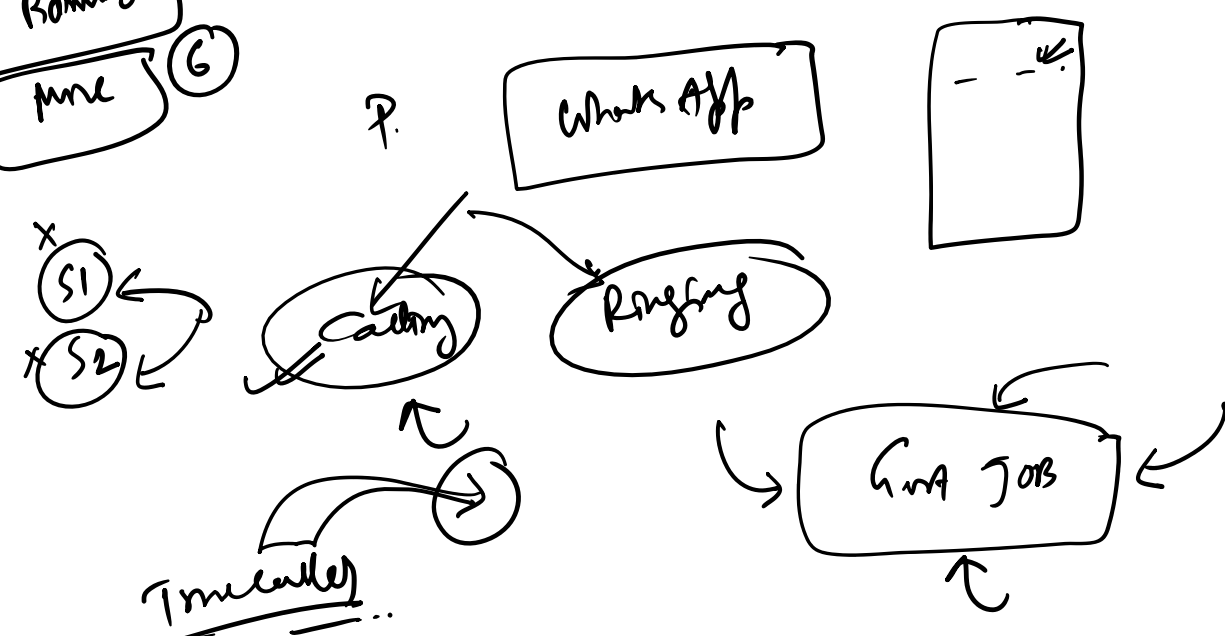
Number Theory based Problems & Solutions

UPSC (3)  
PSC (2)

& SOLUTIONS

- UPSC (1)
- WBES (2)
- SSC (4)
- Kalmy (5)
- Ramdas (1)
- MRC (6)

$10^{563} - 1 \underline{0}$



✓  
✓  
✓

Prime

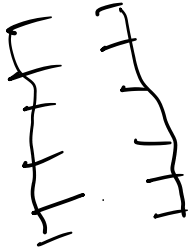
$\leq 17$

$2, 3 = 5 + 5 = 10 + 7 = 17$   
2, 3, 5, 7

.....  
(1-50)      2, 3, 5, 7

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97, 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293, 307, 311, 313, 317, 331, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409, 419, 421, 431, 433, 439, 443, 449, 457, 461, 463, 467, 473, 479, 487, 491, 499, 503, 509, 521, 523, 541, 547, 557, 563, 569, 577, 581, 587, 593, 601, 607, 613, 617, 619, 623, 629, 631, 637, 641, 643, 647, 653, 659, 661, 667, 671, 673, 677, 683, 689, 691, 697, 701, 709, 713, 719, 727, 731, 733, 737, 739, 743, 749, 751, 757, 761, 763, 767, 769, 773, 779, 781, 787, 791, 793, 797, 801, 809, 811, 817, 821, 823, 827, 829, 833, 837, 839, 843, 847, 851, 853, 857, 859, 863, 867, 869, 871, 873, 877, 881, 883, 887, 891, 893, 897, 901, 907, 911, 913, 917, 919, 923, 929, 931, 937, 941, 943, 947, 953, 959, 961, 967, 971, 973, 977, 983, 989, 991, 993, 997, 1000

(15) / 50



(1-100)

33, 59, 61, 67, 71, 73, 79, 83, 89, 97,

(10)

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