06-2021

Exercise - 8(c)

(1) i) 8, 12, 24

M8 = 8, 16, (24), 32, 40, (48), 56, 64, 72, 80 ----
M12 = 12, (24), 36, (48), 60, 72, 84, 96, 108, 120 ---
M24 = (24), (48) ----

LCM = 24

ii) 10, 15, 20

M10 = 10, 20, 30, 40, 50, (60), 70, (80), 90, 100.
M15 = 15, 30, 45, (60) 75, 90, 105, 120, 135, 150...
M20 = 20, 40, (60), 80, 100, 120, 140, 160, 180, 200.

LCM = 60

iii) 3, 6, 9, 12

M3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, (36)
M6 = 6, 12, 18, 24, 30, (36), 42, 48, 54, 60...
M9 = 9, 18, 27, (36), 45, 54, 63, 72, 81, 90.
M12 = 12, 24, (36), 48, 60, 72, 84, 96, 120

LCM - 36

2 (i) Common Division Method : Prime Factor method

2 | 18, 24, 96	2 | 18	2 | 24
3 | 9, 12, 48	3 | 9	2 | 12
3 | 9, 6, 24	3 | 3	2 | 6
2 | 3, 2, 8	1	3
3 | 3, 1, 4		
4 | 1, 1, 4		
1, 1, 1		

$18 = 2 \times 3 \times 3$

$= 2 \times 3^2$

$24 = 2 \times 2 \times 2 \times 3$

$2^3 \times 3$

2 \| 96
2 \| 48
2 \| 24
2 \| 12
2 \| 6
3

$96 = 2^5 \times 3$

LCM $= 2^5 \times 3$

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

$= 288$

LCM $= 2 \times 2 \times 2 \times 3 \times 3 \times 4 = 288$

ii) 100, 150 and 200

Prime factor method:

2 | 100	2 | 150	2 | 200
5 | 50	5 | 75	2 | 100
2 | 10	3 | 15	5 | 50
5 | 5	5 | 5	2 | 10
1	1	5 | 5
		1

$100 = 2 \times 2 \times 5 \times 5$

$= 2^2 \times 5^2$

$150 = 2 \times 3 \times 5 \times 5$

$= 2 \times 3 \times 5^2$

$200 = 2 \times 2 \times 2 \times 5 \times 5$

$= 2^3 \times 5^2$

LCM $= 2^3 \times 5^2 \times 3$

$= 2 \times 2 \times 2 \times 5 \times 5 \times 3$

$= 200 \times 3$

$= 600$

Common Division Method :

2 | 100, 150, 200
5 | 50, 75, 100
2 | 10, 15, 20
5 | 5, 15, 10
2 | 1, 3, 2
3 | 1, 3, 1
1, 1, 1

LCM = $2 \times 2 \times 2 \times 5 \times 5 \times 3$
$= 2^3 \times 5^2 \times 3 = 600$

iii) 66, 33, 132

Prime Factor method :-

11 | 66
2 | 6
3 | 3
1

11 | 33
3 | 3
1

2 | 132
11 | 66
2 | 6
3 | 3
1

$66 = 11 \times 2 \times 3$
$= 11 \times 2 \times 3$

$33 = 11 \times 3$
$= 11 \times 3$

$132 = 2 \times 2 \times 3 \times 11$
$= 2^2 \times 3 \times 11$

LCM = $2^2 \times 3 \times 11$
$= 2 \times 2 \times 3 \times 11 =$

iii) 14, 21, 98

Prime factor method

2 | 14 — 7

7 | 21 — 3

2 | 98 — 7 | 49 — 7

14 = 2 × 7 21 = 7 × 3 98 = 2 × 7 × 7
= 2 × 7^2

LCM = 7^2 × 2 × 3
= 7 × 7 × 2 × 3 = 294

common Divisio method

2 | 14, 21, 98

7 | 7, 21, 49

1, 3, 7

∴ LCM = 2 × 7 × 7 × 3
= 7^2 × 2 × 3 = 294

iv) 22, 121, 33

Prime Factor method

11 | 22 — 2

11 | 121 — 11 | 11 — 1

11 | 33 — 3

22 = 11 × 2 121 = 11 × 11 33 = 11 × 3
= 11 × 2 = 11^2 = 11 × 3

LCM = 11^2 × 2 × 3
= 11 × 11 × 2 × 3 = 726

Common division method

11	22, 33, 121
	2, 3, 11

LCM = $11 \times 11 \times 2 \times 3 = 726$

$= 11^2 \times 2 \times 3 = 726$

(2) 34, 85, 51

Prime Factor method

2	34	5	85	3	51
	17		17		17

$34 = 2 \times 17$ $85 = 5 \times 17$ $51 = 3 \times 17$

LCM = $17 \times 2 \times 3 \times 5 = 510$

Common division method

17	34, 85, 51
	2, 5, 3

LCM = $17 \times 2 \times 5 \times 3 = 510$

(3) HCF = 50

LCM = 300

1st no = 150

2nd no = ? = H.C.F × L.C.M = Product of two no

$= 50 \times 300 = 150 \times ?$

$= 15000 \div 150 = 100$

∴ The other no is 100

4) Ans Product of two no = 432
LCM = 72
HCF = ?

H.C.F x L.C.M = Product of two no
= ? x 72 = 432
= 432 ÷ 72 = HCF
= 6 = 6 is the HCF

∴ The H.C.F is 6

5) Ans Product of two no = 19,200
HCF = 40
LCM = ?

HCF x LCM = Product of two number

= 40 x ? = 19,200
= 19,200 ÷ 40 = LCM
= 480 = 480 is the LCM

6)
2 | 12, 15, 18, 24, 36
2 | 6, 15, 9, 12, 18
3 | 3, 15, 9, 6, 9
3 | 1, 5, 3, 2, 3
5 | 1, 5, 1, 2, 1
2 | 1, 1, 1, 2, 1
1, 1, 1, 1, 1

7) 2 | 12, 18, 24, 32, 40
2 | 6, 9, 12, 16, 20
3 | 3, 9, 6, 8, 10
2 | 1, 3, 2, 8, 10
3 | 1, 3, 1, 4, 5
5 | 1, 1, 1, 4, 5
2 | 1, 1, 1, 4, 1
2 | 1, 1, 1, 2, 1
1, 1, 1, 1, 1

LCM = 2×2×2×2×2×3×3×5 = 1440.
1440 - 1 = 1439

8) 2 | 18, 36, 32, 27
3 | 9, 18, 16, 27
2 | 3, 6, 16, 9
3 | 3, 3, 8, 9
2 | 1, 1, 8, 3
2 | 1, 1, 4, 3
3 | 1, 1, 2, 3
2 | 1, 1, 2, 1
1, 1, 1, 1

LCM = 2×2×2×2×2×3×3×3 = 8643 = 867