Class: 5th. Subject: Math

Exercise 2.3

Q1 Find LCM by prime factorization method

(i) 20, 25, 50

2 | 20	5 | 25	2 | 50
2 | 10	5 | 5	5 | 25
5 | 5	1	5 | 5
1		1

Prime factors of 20 :- $2 \times 2 \times 5$

" " " 25 :- 5×5

" " " 50 :- $2 \times 5 \times 5$

C.F (Common factor) $= 2 \times 5 \times 5 = 50$

U.C.F (Uncommon factor) = 2

LCM = C.F × UCF = $50 \times 2 = 100$

Q2 24, 54, 120

2	24
2	12
2	6
3	3
	1

2	54
3	27
3	9
3	3
	1

2	120
2	60
2	30
3	15
5	5
	1

Prime factors of 24: $2 \times 2 \times 2 \times 3$

" " " 54: $2 \times 3 \times 3 \times 3$

" " " 120: $2 \times 2 \times 2 \times 3 \times 5$

C.f: $2 \times 2 \times 2 \times 3 = 24$

UCF: $3 \times 3 \times 5 = 45$

LCM: 24×45

$= 1080$

Q3:- 32, 80, 160

2	32
2	16
2	8
2	4
2	2
	1

2	80
2	40
2	20
2	10
5	5
	1

2	160
2	80
2	40
2	20
2	10
5	5
	1

Prime factors of 32:- 2 x 2 x 2 x 2 x 2

" " " 80:- 2 x 2 x 2 x 2 x 5

" " " 160:- 2 x 2 x 2 x 2 x 2 x 5

H.C.F:- Nill

C.F:- 2 x 2 x 2 x 2 x 2 x 5 = 160

LCM = 160

Q4:- 40, 80, 140

2 | 40	2 | 80	2 | 140
2 | 20	2 | 40	2 | 70
2 | 10	2 | 20	5 | 35
5 | 5	2 | 10	7 | 7
1	5 | 5	1
	1	

Prime factors of 40:- $2 \times 2 \times 2 \times 5$

" " " 80:- $2 \times 2 \times 2 \times 2 \times 5$

" " " 140:- $2 \times 2 \times 5 \times 7$

C.F:- $2 \times 2 \times 2 \times 5 = 40$

H.C.F:- $2 \times 7 = 14$

LCM:- 40×14

$= 560$

Q5: 24, 48, 72, 96

2 | 24	2 | 48	2 | 72	2 | 96
2 | 12	2 | 24	2 | 36	2 | 48
2 | 6	2 | 12	2 | 18	2 | 24
3 | 3	2 | 6	3 | 9	2 | 12
1	3 | 3	3 | 3	2 | 6
	1	1	3 | 3
			1

Prime factors of 24:- $2 \times 2 \times 2 \times 3$

" " " 48:- $2 \times 2 \times 2 \times 2 \times 3$

" " " 72:- $2 \times 2 \times 2 \times 3 \times 3$

" " " 96:- $2 \times 2 \times 2 \times 2 \times 2 \times 3$

C.F $= 2 \times 2 \times 2 \times 2 \times 3 = 48$

H.C.F:- $3 \times 2 = 6$

LCM $= 48 \times 6$

$= 288$

Exercise 2.3

Q8:- 28, 56, 140, 420

2	28
2	14
7	7
	1

2	56
2	28
2	14
7	7
	1

2	140
2	70
5	35
7	7
	1

2	420
2	210
3	105
5	35
7	7
	1

Prime factors of 28 :- 2 × 2 × 7

" " " 56 :- 2 × 2 × 2 × 7

" " " 140 :- 2 × 2 × 5 × 7

" " " 420 :- 2 × 2 × 3 × 5 × 7

C.F :- 2 × 2 × 5 × 7 = 140

H.C.F = 2 × 3 = 6

LCM :- 140 × 6

= 840

Q7 :- 25, 40, 75, 100

5	25
5	5
	1

2	40
2	20
2	10
5	5
	1

3	75
5	25
5	5
	1

2	100
2	50
5	25
5	5
	1

Prime factors of 25 :- 5 × 5

" " " 40 :- 2 × 2 × 2 × 5

" " " 75 :- 3 × 5 × 5

" " " 100 :- 2 × 2 × 5 × 5

C.F :- 2 × 2 × 5 × 5 = 100

H.C.F :- 2 × 3 = 6

L.C.M :- 6 × 100

= 600

Q8 :- 24, 48, 60, 96

2	24
2	12
2	6
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

2	60
2	30
3	15
5	5
	1

2	96
2	48
2	24
2	12
2	6
3	3
	1

Prime factors of 24 :- 2 × 2 × 2 × 3

" " " 48 :- 2 × 2 × 2 × 2 × 3

" " " 60 :- 2 × 2 × 3 × 5

" " " 96 :- 2 × 2 × 2 × 2 × 2 × 3

C.f :- 2 × 2 × 2 × 2 × 3

= 48

H.C.F :- 5 × 2 = 10.

L.C.M :- 48 × 10

= 480

Question 9 :- 27, 36, 66, 99

3 | 27	2 | 36	2 | 66	3 | 99
3 | 9	2 | 18	3 | 33	3 | 33
3 | 3	3 | 9	11 | 11	11 | 11
1	3 | 3	1	1
	1		

Prime factors of 27 :- 3 x 3 x 3

" " " 36 :- 2 x 2 x 3 x 3

" " " 66 :- 2 x 3 x 11

" " " 99 :- 3 x 11 x 3

C.F :- 2 x 3 x 3 x 11 = 198

H.C.F :- 2 x 3 = 6

LCM = 198 x 6

= 1188

Q10 :- 30, 45, 80, 125

2	30	3	45	2	80	5	125
3	15	3	15	2	40	5	25
5	5	5	5	2	20	5	5
	1		1	2	10		1
				5	5		
					1		

Prime factors of 30 :- 2 × 3 × 5

" " " 45 :- 3 × 3 × 5

" " " 80 :- 2 × 2 × 2 × 2 × 5

" " " 125 :- 5 × 5 × 5

C.F :- 2 × 3 × 5 = 30

L.C.M :- 3 × 2 × 2 × 2 × 5 × 5 = 600

LCM :- 30 × 600

= 18000