EXERCISE 2E

PAGE NO: 40

1. 42, 63

Solution

2	42
3	21
7	7
	1

3	63
3	21
7	7
	1

$42 = 2 \times 3 \times 7$

$63 = 3 \times 3 \times 7$

$= 3^2 \times 7$

$\therefore$ LCM of 42 and $63 = 2 \times 3^2 \times 7$

$= 2 \times 9 \times 7$

$= 18 \times 7$

$= 126$

2. 60, 75

Solution

2	60
2	30
3	15
5	5
	1

3	75
5	25
5	5
	1

$60 = 2 \text{ c } 2 \times 3 \times 5$

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

$75 = 3 \times 5 \times 5$

$= 3 \times 5^2$

$\therefore$ LCM of 60 and $75 = 2^2 \times 3 \times 5^2$

$= 4 \times 3 \times 25$

$= 12 \times 25$

$= 300$

3. 12, 18, 20

Solutions

2	12
2	6
3	3
	1

2	18
3	9
3	3
	1

2	20
2	10
5	5
	1

$12 = 2 \times 2 \times 3 = 2^2 \times 3$
$18 = 2 \times 3 \times 3 = 2 \times 3^2$
$20 = 2 \times 2 \times 5 = 2^2 \times 5$
$\therefore$ LCM of 12, 18, and 20 $= 2^2 \times 3^2 \times 5$
$= 4 \times 9 \times 5$
$= 180$

4. 36, 60, 72

Solutions

2	36
2	18
3	9
3	3
	1

2	60
2	30
3	15
5	5
	1

2	72
2	36
2	18
3	9
3	3
	1

$36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$
$60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$

$72 = 2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$

$\therefore$ LCM of 36, 60 and 72 $= 2^3 \times 3^2 \times 5$

$= 8 \times 9 \times 5$

$= 72 \times 5$

$= 360$

5. 36, 40, 126

Solutions

2	36
2	18
3	9
3	3
	1

2	40
2	20
2	10
5	5
	1

2	126
3	63
3	21
7	7
	1

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

$40 = 2 \times 2 \times 2 \times 5 = 2^3 \times 5$

$126 = 2 \times 3^2 \times 7$

$\therefore$ LCM of 36, 40 and 126 $= 2^3 \times 3^2 \times 5 \times 7$

$= 8 \times 9 \times 5 \times 7$

$= 72 \times 35$

$= 2520$

6. 16, 28, 40, 77

Solution

2	16	18	40	77
2	8	14	20	77
2	4	7	10	77
7	2	7	5	77
	2	1	5	11

$\therefore$ LCM of given numbers $= 2 \times 2 \times 2 \times 7 \times 2 \times 5 \times 11$

$= 2^4 \times 5 \times 7 \times 11$

$= 16 \times 35 \times 11$

$= 6160$

7. 28, 36, 45, 60

Solutions

2	28	36	45	60
2	14	18	45	30
3	7	9	45	15
3	7	3	15	5
5	7	1	5	5
	7	1	1	1

∴ LCM of given numbers = $2 \times 2 \times 3 \times 3 \times 5 \times 7$

$= 2^2 \times 3^2 \times 5 \times 7$

$= 4 \times 9 \times 5 \times 7$

$= 36 \times 35$

$= 1260$

8. 144, 180, 384

Solutions

2	144	180	384
2	72	90	192
2	36	45	96
2	18	45	48
3	9	45	24
3	3	15	8
	1	5	8

∴ LCM of given numbers = $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 8$

$= 2^4 \times 3^2 \times 5 \times 8$

$= 16 \times 9 \times 5 \times 8$

$= 16 \times 45 \times 8$

$= 5760$

9. 48, 64, 72, 96, 108

Solution

2	48	64	72	96	108
2	24	32	36	48	54
2	12	16	18	24	27
2	6	8	9	12	27
2	3	4	9	6	27
3	3	2	9	3	27
3	1	2	3	1	9
	1	2	1	1	3

∴ LCM of given numbers = $2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 2 \times 3$

$= 2^6 \times 3^3$

$= 64 \times 27$

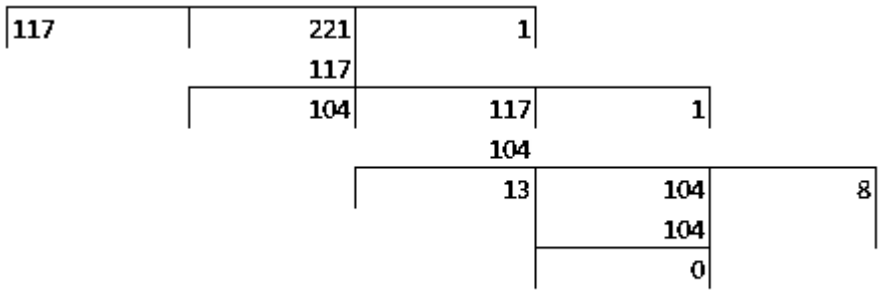
$= 1728$

Find the HCF and LCM of

1. 117, 221

Solution

To find the HCF of 117 and 221



∴ HCF of 117and 221 = 13

Since, LCM = product of numbers/HCF

=117 × 221/13

= 9 × 221

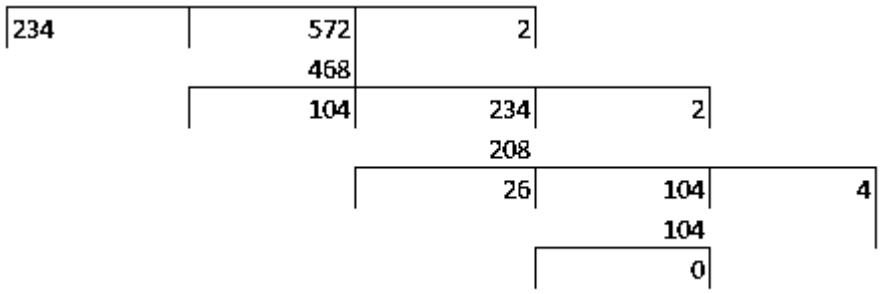
= 1989

∴ LCM = 1989 and HCF = 13

2. 234,572

Solution

To find the HCF of 234 and 572



∴ HCF of 234 and 572 = 26

Since, LCM = Product of numbers/ HCF

= 234 × 572/ 26

= 9 × 572

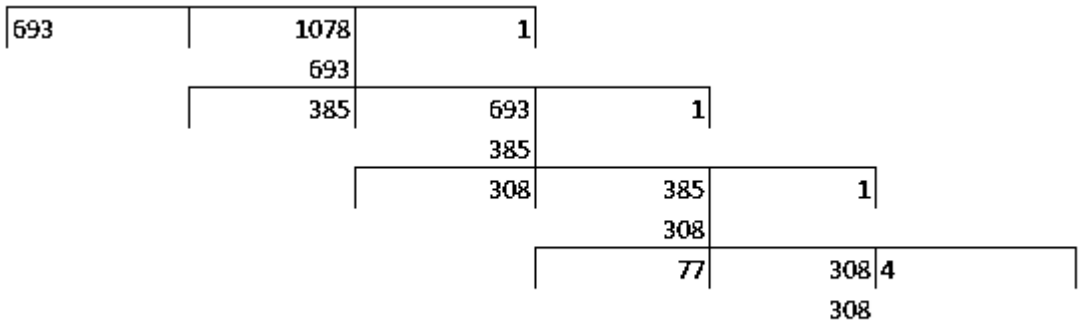
= 5148

∴ LCM = 5148 and HCF = 26

3. 693, 1078

Solution

To find the HCF of 693 and 1078



∴ HCF of 693 and 1078 = 77

Since, LCM = Product of numbers/ HCF

= 693 × 1078 / 77

= 9 × 1078

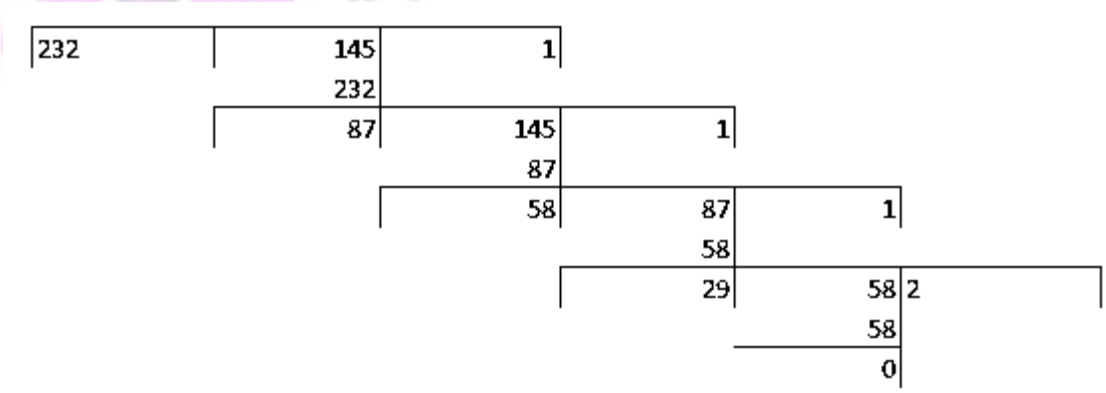
= 9702

∴ LCM = 9702 and HCF = 77

4. 145,232

Solution

To find the HCF of 693 and 1078



∴ HCF of 145 and 232 = 29

Since, LCM = product of numbers / HCF

= 145 × 232 / 29

= 5 × 232

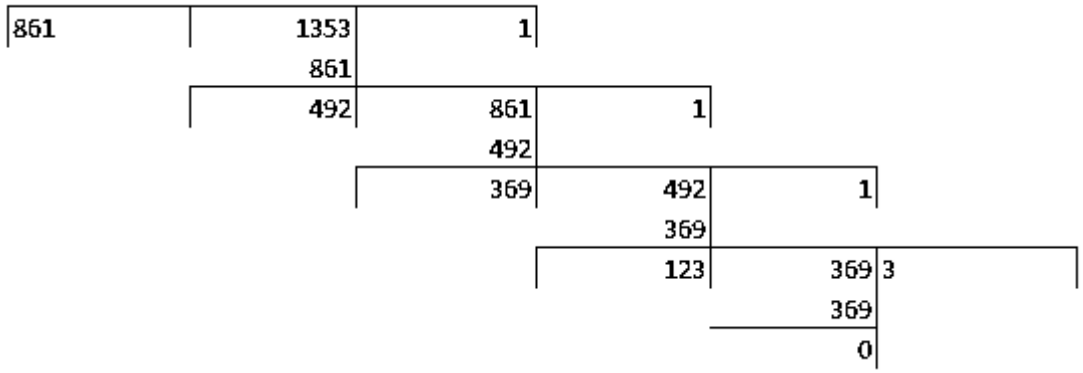
= 1160

∴ LCM = 1160 and HCF = 29

5. 861, 1353

Solution

To find HCF of 861 and 1353



∴ HCF of 861 and 1353 = 123

Since, LCM = product of numbers /HCF

= 861 × 1353 / 123

= 7 × 1353

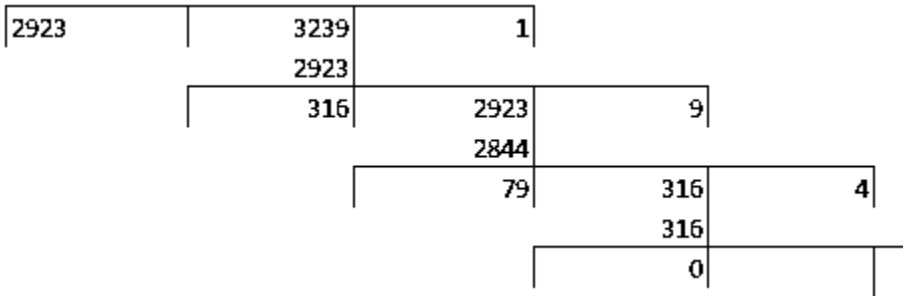
= 9471

∴ LCM = 9471 and HCF = 123

6. 2923, 3239

Solution

To find HCF of 2923 and 3239



∴ HCF of 2923 and 3239 = 79

Since, LCM = product of numbers/ HCF

= 2923 × 3239 / 79

= 37 × 3239

= 119843

∴ LCM = 119843 and HCF = 79