

Exc- 6-A

Prime factorization Method.
Find H.C.F.

Q. (5) @ 30 and 75

Sol-

$$\begin{array}{r} 2 \overline{) 30} \\ 3 \overline{) 15} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{) 75} \\ 5 \overline{) 25} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$30 = 2 \times 3 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$\text{H.C.F.} = 3 \times 5$$

$$= 15 \text{ Ans.}$$

(b) 64 and 80

Sol-

$$\begin{array}{r} 2 \overline{) 64} \\ 2 \overline{) 32} \\ 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \overline{) 2} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 80} \\ 2 \overline{) 40} \\ 2 \overline{) 20} \\ 2 \overline{) 10} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$\text{H.C.F.} = 2 \times 2 \times 2 \times 2$$

$$= 16 \text{ Ans.}$$

© 36 and 81

Sol -

$$\begin{array}{r} 2 \overline{) 36} \\ 2 \overline{) 18} \\ 2 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{) 81} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

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

$$81 = 3 \times 3 \times 3 \times 3$$

$$\text{H.C.F.} = 3 \times 3 = 9 \text{ Ans.}$$

Q6@ 45 and 105

Sol -

$$\begin{array}{r} 3 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$\begin{array}{r} 3 \overline{) 105} \\ 5 \overline{) 35} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$45 = 3 \times 3 \times 5$$

$$105 = 3 \times 5 \times 7$$

$$\text{H.C.F.} = 3 \times 5 = 15 \text{ Ans.}$$

© 72 and 126

Sol -

$$\begin{array}{r} 2 \overline{) 72} \\ 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 126} \\ 3 \overline{) 63} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ 1 \end{array}$$

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

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

$$\text{H.C.F.} = 2 \times 3 \times 3 = 18 \text{ Ans.}$$

(d) 56 and 84

Sol -

$$\begin{array}{r} 2 \overline{) 56} \\ 2 \overline{) 28} \\ 2 \overline{) 14} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 84} \\ 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$56 = 2 \times 2 \times 2 \times 7$$

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

$$\text{H.C.F.} = 2 \times 2 \times 7 = 28 \text{ Ans.}$$

(d) 48 and 128

Sol -

$$\begin{array}{r} 2 \overline{) 48} \\ 2 \overline{) 24} \\ 2 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 128} \\ 2 \overline{) 64} \\ 2 \overline{) 32} \\ 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \overline{) 2} \\ 1 \end{array}$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$\text{H.C.F.} = 2 \times 2 \times 2 \times 2 = 16 \text{ Ans.}$$

(d) 66 and 198

Sol -

$$\begin{array}{r} 2 \overline{) 66} \\ 3 \overline{) 33} \\ 11 \overline{) 11} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 198} \\ 3 \overline{) 99} \\ 3 \overline{) 33} \\ 11 \overline{) 11} \\ 1 \end{array}$$

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

$$198 = 2 \times 3 \times 3 \times 11$$

$$\text{H.C.F.} = 2 \times 3 \times 11 = 66 \text{ Ans.}$$

Q7 @ 165 and 275

Sol -

$$\begin{array}{r} 3 \overline{) 165} \\ \underline{5} 55 \\ 11 \underline{11} \\ 1 \end{array}$$

$$\begin{array}{r} 5 \overline{) 275} \\ \underline{5} 55 \\ 11 \underline{11} \\ 1 \end{array}$$

$$165 = 3 \times 5 \times 11$$

$$275 = 5 \times 5 \times 11$$

$$H.C.F. = 5 \times 11 = 55 \text{ Ans.}$$

Q8 @ 240 and 300

Sol -

$$\begin{array}{r} 2 \overline{) 240} \\ \underline{2} 120 \\ \underline{2} 60 \\ \underline{2} 30 \\ \underline{3} 15 \\ \underline{5} 5 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 300} \\ \underline{2} 150 \\ \underline{3} 75 \\ \underline{5} 25 \\ \underline{5} 5 \\ 1 \end{array}$$

$$240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5$$

$$300 = 2 \times 2 \times 3 \times 5 \times 5$$

$$H.C.F. = 2 \times 2 \times 3 \times 5 = 60 \text{ Ans.}$$

Q8 @ 36, 48 and 84

Sol -

$$\begin{array}{r} 2 \overline{) 36} \\ \underline{2} 18 \\ \underline{3} 9 \\ \underline{3} 3 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 48} \\ \underline{2} 24 \\ \underline{2} 12 \\ \underline{2} 6 \\ \underline{3} 3 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 84} \\ \underline{2} 42 \\ \underline{3} 21 \\ \underline{7} 7 \\ 1 \end{array}$$

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

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

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

$$H.C.F. = 2 \times 2 \times 3 = 12 \text{ Ans.}$$

Q8 @ 120 and 168

Sol -

$$\begin{array}{r} 2 \overline{) 120} \\ \underline{2} 60 \\ \underline{2} 30 \\ \underline{3} 15 \\ \underline{5} 5 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 168} \\ \underline{2} 84 \\ \underline{2} 42 \\ \underline{3} 21 \\ \underline{7} 7 \\ 1 \end{array}$$

$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$168 = 2 \times 2 \times 2 \times 3 \times 7$$

$$H.C.F. = 2 \times 2 \times 2 \times 3 = 24 \text{ Ans.}$$

Q8 @ 130 and 208

Sol -

$$\begin{array}{r} 2 \overline{) 130} \\ \underline{5} 65 \\ \underline{13} 13 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 208} \\ \underline{2} 104 \\ \underline{2} 52 \\ \underline{2} 26 \\ \underline{13} 13 \\ 1 \end{array}$$

$$130 = 2 \times 5 \times 13$$

$$208 = 2 \times 2 \times 2 \times 2 \times 13$$

$$H.C.F. = 2 \times 13 = 26 \text{ Ans.}$$

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Q 8 (b) 38, 57 and 76

Sol -

$$\begin{array}{r} 2 \overline{)38} \\ 19 \overline{)19} \\ 1 \end{array} \quad \begin{array}{r} 3 \overline{)57} \\ 19 \overline{)19} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)76} \\ 2 \overline{)38} \\ 19 \overline{)19} \\ 1 \end{array}$$

38 = 2×19

57 = 3×19

76 = $2 \times 2 \times 19$

H.C.F. = 19 Ans.

d) 63, 81 and 108

Sol -

$$\begin{array}{r} 3 \overline{)63} \\ 3 \overline{)21} \\ 7 \overline{)7} \\ 1 \end{array} \quad \begin{array}{r} 3 \overline{)81} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)108} \\ 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array}$$

63 = $3 \times 3 \times 7$

81 = $3 \times 3 \times 3 \times 3$

108 = $2 \times 2 \times 3 \times 3 \times 3$

H.C.F. = $3 \times 3 = 9$ Ans.

Q 9 120, 128 and 496

Sol -

$$\begin{array}{r} 2 \overline{)120} \\ 2 \overline{)60} \\ 2 \overline{)30} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)128} \\ 2 \overline{)64} \\ 2 \overline{)32} \\ 2 \overline{)16} \\ 2 \overline{)8} \\ 2 \overline{)4} \\ 2 \overline{)2} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)496} \\ 2 \overline{)248} \\ 2 \overline{)124} \\ 2 \overline{)62} \\ 3 \overline{)31} \\ 1 \end{array}$$

120 = $2 \times 2 \times 2 \times 3 \times 5$

128 = $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

496 = $2 \times 2 \times 2 \times 2 \times 31$

H.C.F. = $2 \times 2 \times 2 = 8$ Ans.

Q 10 54, 72 and 90

Sol -

$$\begin{array}{r} 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)72} \\ 2 \overline{)36} \\ 2 \overline{)18} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{)90} \\ 3 \overline{)45} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ 1 \end{array}$$

54 = $2 \times 3 \times 3 \times 3$

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

90 = $2 \times 3 \times 3 \times 5$

H.C.F. = $2 \times 3 \times 3 = 18$ Ans.

2

Q) 132, 154 and 176

Sol -

2 132	2 154	2 176
2 66	7 77	2 88
3 33	11 11	2 44
11 11	1 1	2 22
1 1		11 11
		1 1

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

$$154 = 2 \times 7 \times 11$$

$$176 = 2 \times 2 \times 2 \times 2 \times 11$$

$$\therefore \text{H.C.F.} = 2 \times 11 = 22 \text{ Ans.}$$

Q) 210, 240 and 360

Sol -

2 210	2 240	2 360
3 105	3 120	2 180
5 35	2 60	2 90
7 7	2 30	3 45
1 1	3 15	5 15
	5 5	5 5
	1 1	1 1

$$210 = 2 \times 3 \times 5 \times 7$$

$$240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5$$

$$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$\therefore \text{H.C.F.} = 2 \times 3 \times 5 = 30 \text{ Ans.}$$

Q) 130, 195 and 390

Sol -

2 130	3 195	2 390
5 65	5 65	3 195
13 13	13 13	5 65
1 1	1 1	13 13
		1 1

$$130 = 2 \times 5 \times 13$$

$$195 = 3 \times 5 \times 13$$

$$390 = 2 \times 3 \times 5 \times 13$$

$$\therefore \text{H.C.F.} = 5 \times 13 = 65 \text{ Ans.}$$

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Find the H.C.F.

Q.9 a) 39, 93

Sol -

$$\begin{array}{r|rr} 3 & 39 & 393 \\ 13 & 13 & 3131 \\ \hline & 1 & 1 \end{array}$$

$$39 = 3 \times 13$$

$$93 = 3 \times 31$$

$$\text{H.C.F.} = 3 \text{ Ans.}$$

Q.10 c) 385, 490

Sol -

$$\begin{array}{r|rr} 5 & 385 & 2490 \\ 7 & 77 & 5245 \\ 11 & 11 & 749 \\ \hline & 1 & 7 \\ & & 1 \end{array}$$

$$385 = 5 \times 7 \times 11$$

$$490 = 2 \times 5 \times 7 \times 7$$

$$\text{H.C.F.} = 5 \times 7 = 35 \text{ Ans.}$$

b) 42, 140.

$$\begin{array}{r|rr} 2 & 42 & 2140 \\ 3 & 21 & 270 \\ 7 & 7 & 535 \\ \hline & 1 & 7 \\ & & 1 \end{array}$$

$$42 = 2 \times 3 \times 7$$

$$140 = 2 \times 2 \times 5 \times 7$$

$$\text{H.C.F.} = 2 \times 7 = 14 \text{ Ans.}$$

Q.10 a)

36, 420 and 900

Sol -

$$\begin{array}{r|rr} 2 & 36 & 2420 & 2900 \\ 3 & 18 & 220 & 2450 \\ 3 & 9 & 220 & 3225 \\ 3 & 3 & 105 & 375 \\ 5 & 3 & 35 & 525 \\ 7 & 1 & 7 & 55 \\ \hline & 1 & 1 & 1 \end{array}$$

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

$$420 = 2 \times 2 \times 3 \times 5 \times 7$$

$$900 = 2 \times 2 \times 3 \times 3 \times 5 \times 5$$

$$\text{H.C.F.} = 2 \times 2 \times 3 = 12 \text{ Ans.}$$

(b) 60, 270 and 390

Sol -

$$\begin{array}{r|l}
 2 & 60 \\
 \hline
 2 & 30 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}
 \quad
 \begin{array}{r|l}
 2 & 270 \\
 \hline
 3 & 135 \\
 \hline
 3 & 45 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}
 \quad
 \begin{array}{r|l}
 2 & 390 \\
 \hline
 3 & 195 \\
 \hline
 5 & 65 \\
 \hline
 13 & 13 \\
 \hline
 & 1
 \end{array}$$

$$\begin{aligned}
 60 &= 2 \times 2 \times 3 \times 5 \\
 270 &= 2 \times 3 \times 3 \times 3 \times 5 \\
 390 &= 2 \times 3 \times 5 \times 13
 \end{aligned}$$

$$H.C.F. = 2 \times 3 \times 5 = 30 \text{ Ans.}$$

(c) 75, 150 and 225

Sol -

$$\begin{array}{r|l}
 3 & 75 \\
 \hline
 5 & 25 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}
 \quad
 \begin{array}{r|l}
 2 & 150 \\
 \hline
 3 & 75 \\
 \hline
 5 & 25 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}
 \quad
 \begin{array}{r|l}
 3 & 225 \\
 \hline
 3 & 75 \\
 \hline
 5 & 25 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}$$

$$\begin{aligned}
 75 &= 3 \times 5 \times 5 \\
 150 &= 2 \times 3 \times 5 \times 5 \\
 225 &= 3 \times 3 \times 5 \times 5
 \end{aligned}$$

$$H.C.F. = 3 \times 5 \times 5 = 75 \text{ Ans.}$$

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Exc- 6-B

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Q1 @ Sol -

Required number will be the H.C.F. of 54 and 81

$$\begin{array}{r|l} 2 & 54 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline 1 & \end{array}$$

$$\begin{array}{r|l} 3 & 81 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline 1 & \end{array}$$

$$54 = 2 \times 3 \times 3 \times 3$$

$$81 = 3 \times 3 \times 3 \times 3$$

$$\text{H.C.F.} = 3 \times 3 \times 3 = 27 \text{ Ans}$$

$$\text{Required number} = 27$$

Q2 @ Sol -

Required number will be H.C.F. of

33, 44 and 66

$$\begin{array}{r|l} 3 & 33 \\ \hline 11 & 11 \\ \hline 1 & \end{array}$$

$$\begin{array}{r|l} 2 & 44 \\ \hline 2 & 22 \\ \hline 11 & 11 \\ \hline 1 & \end{array}$$

$$\begin{array}{r|l} 2 & 66 \\ \hline 3 & 33 \\ \hline 11 & 11 \\ \hline 1 & \end{array}$$

$$33 = 3 \times 11$$

$$44 = 2 \times 2 \times 11$$

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

$$\text{H.C.F.} = 11$$

$$\text{Required number} = 11$$

Q20. Sol —

$$33 - 3 = 30$$

$$45 - 3 = 42$$

Required number will be H.C.F. of 30 and 42

$$\begin{array}{r} 2 \overline{) 30} \\ 3 \overline{) 15} \\ 5 \overline{) 5} \\ \hline 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ \hline 1 \end{array}$$

$$30 = (2 \times 3 \times 5)$$

$$42 = (2 \times 3 \times 7)$$

$$\text{H.C.F.} = 2 \times 3 = 6$$

Required number = 6

Q21. Sol —

$$51 - 9 = 42$$

$$79 - 9 = 70$$

Required number will be H.C.F. of 42 and 70.

$$\begin{array}{r} 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ \hline 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 70} \\ 5 \overline{) 35} \\ 7 \overline{) 7} \\ \hline 1 \end{array}$$

$$42 = (2 \times 3 \times 7)$$

$$70 = (2 \times 5 \times 7)$$

$$\text{H.C.F.} = 2 \times 7 = 14$$

Required number = 14

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23 Sol -

$$47 - 5 = 42$$

$$77 - 5 = 72$$

$$89 - 5 = 84$$

Required number will be the H.C.F. of 42, 72 and 84

$$\begin{array}{r} 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 72} \\ 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 84} \\ 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$42 = 2 \times 3 \times 7$$

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

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

$$\text{H.C.F.} = 2 \times 3 = 6$$

Required number = 6

24 @ Sol ! -

$$27 - 3 = 24, \quad 41 - 5 = 36, \quad 50 - 2 = 48$$

Required number will be H.C.F. of 24, 36 and 48

$$\begin{array}{r} 2 \overline{) 24} \\ 2 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 48} \\ 2 \overline{) 24} \\ 2 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \overline{) 3} \\ 1 \end{array}$$

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

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

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$\text{H.C.F.} = 2 \times 2 \times 3 = 12$$

Required number = 12 Ans.

"You have to take the calculated risk, to earn something." - Jai Gopal Anand

Q4(b) Sol:—

$$57 - 7 = 50, \quad 133 - 8 = 125, \quad 384 - 9 = 375$$

Required number will be the H.C.F. of 50, 125 and 375.

$$\begin{array}{r} 2 \overline{) 50} \\ 5 \overline{) 25} \\ 5 \overline{) 5} \\ \hline 1 \end{array} \quad \begin{array}{r} 5 \overline{) 125} \\ 5 \overline{) 25} \\ 5 \overline{) 5} \\ \hline 1 \end{array} \quad \begin{array}{r} 3 \overline{) 375} \\ 5 \overline{) 125} \\ 5 \overline{) 25} \\ 5 \overline{) 5} \\ \hline 1 \end{array}$$

$$50 = 2 \times 5 \times 5$$

$$125 = 5 \times 5 \times 5$$

$$375 = 3 \times 5 \times 5 \times 5$$

$$\text{H.C.F.} = 5 \times 5 = 25$$

Required number = 25

Q5 Sol:—

Required length of tape will be the H.C.F. of 56 cm and 140 cm.

$$\begin{array}{r} 2 \overline{) 56} \\ 2 \overline{) 28} \\ 2 \overline{) 14} \\ 2 \overline{) 7} \\ \hline 1 \end{array} \quad \begin{array}{r} 2 \overline{) 140} \\ 2 \overline{) 70} \\ 2 \overline{) 35} \\ 5 \overline{) 35} \\ \hline 1 \end{array}$$

$$56 = 2 \times 2 \times 2 \times 7$$

$$140 = 2 \times 2 \times 5 \times 7$$

$$\text{H.C.F.} = 2 \times 2 \times 7 = 28$$

$$\text{Ans} = 28 \text{ cm.}$$

Q6 Sol -

Greatest weight will be the
H.C.F. of 54 kg and 72 kg.

$$\begin{array}{r} 2 \overline{) 54} \\ \underline{32} \\ 39 \\ \underline{33} \\ 6 \\ \underline{6} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 72} \\ \underline{23} \\ 236 \\ \underline{218} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

$$54 = 2 \times 3 \times 3 \times 3$$

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

$$\text{H.C.F.} = 2 \times 3 \times 3 = 18$$

Greatest weight = 18 kg. Ans.

Find L.C.M. with the help of multiplication tables -

Q1 a) 3 and 6

sol -

Multiples of 3 = 3, (6) 9, 12, 15

Multiples of 6 = (6) 12, 18, 24, 30

L.C.M. = 6 Ans.

b) 4 and 8

sol -

Multiples of 4 = 4, (8) 12, 16, 20

Multiples of 8 = (8) 16, 24, 32, 40

L.C.M. = 8 Ans.

c) 10 and 15

sol -

Multiples of 10 = 10, 20, (30) 40, 50

Multiples of 15 = 15, (30) 45, 60, 75

L.C.M. = 30

d) 9 and 12

sol -

Multiples of 9 = 9, 18, 27, (36) 45

Multiples of 12 = 12, 24, (36) 48, 60

L.C.M. = 36 Ans.

Q2 (a) 9, 15

Sol - Multiples of 9 = 9, 18, 27, 36, (45)

Multiples of 15 = 15, 30, (45), 60, 75

L.C.M. = 45 Ans.

(b) 12, 16

Sol -

Multiples of 12 = 12, 24, 36, (48), 60

Multiples of 16 = 16, 32, (48), 64, 80

L.C.M. = 48 Ans.

(c) 18, 24

Sol -

Multiples of 18 = 18, 36, 54, (72), 90

Multiples of 24 = 24, 48, (72), 96, 120

(d) 18, 27

Sol -

Multiples of 18 = 18, 36, (54), 72, 90

Multiples of 27 = 27, (54), 81, 108, 135

L.C.M. = 54 Ans.

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Exo - 6-C

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Find L.C.M.

Q3 (a) 3, 4 and 6

Sol — Multiples of 3 = 3, 6, 9, (12), 15
Multiples of 4 = 4, 8, (12), 16, 20
Multiples of 6 = 6, (12), 18, 24, 30
L.C.M. = 12 Ans.

(b) 2, 3 and 6

Sol -

Multiples of 2 = 2, 4, (6), 8, 10
Multiples of 3 = 3, (6), 9, 12, 15
Multiples of 6 = (6), 12, 18, 24, 30
L.C.M. = 6 Ans.

(c) 4, 6 and 9

Sol -

Multiples of 4 = 4, 8, 12, 16, 20, 24, 28, 32, (36), 40
Multiples of 6 = 6, 12, 18, 24, 30, (36), 42, 48, 54, 60
Multiples of 9 = 9, 18, 27, (36), 45, 54, 63, 72, 81, 90
L.C.M. = 36 Ans.

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Q3 (d) 8, 9 and 12

Sol -

Multiples of 8 = 8, 16, 24, 32, 40, 48, 56, 64, (72), 80

Multiples of 9 = 9, 18, 27, 36, 45, 54, 63, (72), 81, 90

Multiples of 12 = 12, 24, 36, 48, 60, (72), 84, 96, 108, 120

L.C.M. = 72 Ans.

Q4 (a) 10, 15 and 5

Sol - Multiples of 10 = 10, 20, (30), 40, 50, 60, 70, 80, 90, 100

Multiples of 15 = 15, (30), 45, 60, 75, 90, 105, 120, 135, 150

Multiples of 5 = 5, 10, 15, 20, 25, (30), 35, 40, 45, 50

L.C.M. = 30 Ans.

Q5 (a) 6, 10 and 15

Sol - Multiples of 6 = 6, 12, 18, 24, (30), 36, 42, 48, 54, 60

Multiples of 10 = 10, 20, (30), 40, 50, 60, 70, 80, 90, 100

Multiples of 15 = 15, (30), 45, 60, 75, 90, 105, 120, 135, 150

L.C.M. = 30 Ans.

Q6 (a)

(b) 8, 12 and 16

Sol - Multiples of 8 = 8, 16, 24, 32, 40, (48), 56, 64, 72, 80

Multiples of 12 = 12, 24, 36, (48), 60, 72, 84, 96, 108, 120

Multiples of 16 = 16, 32, (48), 64, 80, 96, 112, 128, 144, 160

L.C.M. = 48 Ans.

Q7 (a)

(b) 4, 12 and 18

Sol - Multiples of 4 = 4, 8, 12, 16, 20, 24, 28, 32, (36), 40

Multiples of 12 = 12, 24, (36), 48, 60, 72, 84, 96, 108, 120

Multiples of 18 = 18, (36), 54, 72, 90, 108, 126, 144, 162, 180

L.C.M. = 36 Ans.

"You have to take the calculated risk, to earn something." - Dhruvhami Ambani

Q4. Find L.C.M.
Division Method.

We can solve this question by multiplication method, but it will take time.

So, we will solve by Division method.

Q5. 3, 4 and 5
Sol -

$$\begin{array}{r|l} 2 & 3, 4, 5 \\ \hline 2 & 3, 2, 5 \\ \hline 3 & 3, 1, 5 \\ \hline 5 & 1, 1, 5 \\ \hline & 1, 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 3 \times 5 \\ &= 60 \text{ Ans.} \end{aligned}$$

Q6. 5, 6 and 7
Sol -

$$\begin{array}{r|l} 2 & 5, 6, 7 \\ \hline 3 & 5, 3, 7 \\ \hline 5 & 5, 1, 7 \\ \hline 7 & 1, 1, 7 \\ \hline & 1, 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 3 \times 5 \times 7 \\ &= 210 \text{ Ans.} \end{aligned}$$

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(3)

Q4 (a) 4, 7 and 9

Sol -

$$\begin{array}{r|l} 2 & 4, 7, 9 \\ \hline 2 & 2, 7, 9 \\ \hline 3 & 1, 7, 9 \\ \hline 3 & 1, 7, 3 \\ \hline 7 & 1, 7, 1 \\ \hline & 1, 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 3 \times 3 \times 7 \\ &= 252 \text{ Ans} \end{aligned}$$

Q5 (a) 5, 8 and 11

Sol -

$$\begin{array}{r|l} 2 & 5, 8, 11 \\ \hline 2 & 5, 4, 11 \\ \hline 2 & 5, 2, 11 \\ \hline 5 & 5, 1, 11 \\ \hline 11 & 1, 1, 11 \\ \hline & 1, 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 5 \times 11 \\ &= 440 \text{ Ans} \end{aligned}$$

V B. MATHS

Exc- 6-D

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Find L.C.M. (Division method)

Q1 (a) 8, 12

Sol-

$$\begin{array}{r|l} 2 & 8, 12 \\ 2 & 4, 6 \\ 2 & 2, 3 \\ 3 & 1, 3 \\ & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \\ &= 24 \text{ Ans.} \end{aligned}$$

(b) 9, 21

Sol-

$$\begin{array}{r|l} 3 & 9, 21 \\ 3 & 3, 7 \\ 7 & 1, 7 \\ & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 3 \times 3 \times 7 \\ &= 63 \text{ Ans.} \end{aligned}$$

(c) 12, 18

Sol-

$$\begin{array}{r|l} 2 & 12, 18 \\ 2 & 6, 9 \\ 3 & 3, 9 \\ 3 & 1, 3 \\ & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 3 \times 3 \\ &= 36 \text{ Ans.} \end{aligned}$$

(d) 10, 25

Sol-

$$\begin{array}{r|l} 2 & 10, 25 \\ 5 & 5, 25 \\ 5 & 1, 5 \\ & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 5 \times 5 \\ &= 50 \text{ Ans.} \end{aligned}$$

Q2 @ 24 and 18

Sol -

$$\begin{array}{r|l}
 2 & 24, 18 \\
 2 & 12, 9 \\
 2 & 6, 9 \\
 3 & 3, 9 \\
 3 & 1, 3 \\
 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \times 3 \\
 &= 72 \text{ Ans.}
 \end{aligned}$$

Q3 @ 36 and 54

Sol -

$$\begin{array}{r|l}
 3 & 36, 54 \\
 2 & 18, 27 \\
 3 & 9, 27 \\
 3 & 3, 9 \\
 3 & 1, 3 \\
 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 3 \times 3 \times 3 \\
 &= 108 \text{ Ans.}
 \end{aligned}$$

Q3 @ 21 and 63

Sol -

$$\begin{array}{r|l}
 3 & 21, 63 \\
 3 & 7, 21 \\
 7 & 7, 7 \\
 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 3 \times 3 \times 7 \\
 &= 63 \text{ Ans.}
 \end{aligned}$$

Q4 @ 24 and 32

Sol -

$$\begin{array}{r|l}
 2 & 24, 32 \\
 2 & 12, 16 \\
 2 & 6, 8 \\
 2 & 3, 4 \\
 2 & 3, 2 \\
 2 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\
 &= 96 \text{ Ans.}
 \end{aligned}$$

Q4 @ 48 and 72

Sol -

$$\begin{array}{r|l}
 2 & 48, 72 \\
 2 & 24, 36 \\
 2 & 12, 18 \\
 2 & 6, 9 \\
 3 & 3, 9 \\
 3 & 1, 3 \\
 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \\
 &= 144 \text{ Ans.}
 \end{aligned}$$

Q5 @ 22 and 44

Sol -

$$\begin{array}{r|l}
 2 & 22, 44 \\
 2 & 11, 22 \\
 11 & 11, 11 \\
 & 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 11 \\
 &= 44 \text{ Ans.}
 \end{aligned}$$

Q3 (a) 39 and 65

$$\begin{array}{r} \text{Sol - } 3 \overline{) 39, 65} \\ \underline{5 13, 65} \\ 3 \overline{) 13, 13} \\ \underline{1 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 3 \times 5 \times 13 \\ &= 195 \text{ Ans.} \end{aligned}$$

Q4 (a) 2, 8, 12

$$\begin{array}{r} \text{Sol - } 2 \overline{) 2, 8, 12} \\ \underline{3 4, 8} \\ 3 \overline{) 4, 8} \\ \underline{3 1, 8} \\ 3 \overline{) 1, 8} \\ \underline{1 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \\ &= 24 \text{ Ans.} \end{aligned}$$

Q5 (a) 20, 30, 40

$$\begin{array}{r} \text{Sol - } 2 \overline{) 20, 30, 40} \\ \underline{10 15, 20} \\ 3 \overline{) 10, 15, 20} \\ \underline{5 5, 5} \\ 5 \overline{) 5, 5, 5} \\ \underline{1 1, 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 5 \times 5 \\ &= 120 \text{ Ans.} \end{aligned}$$

Q6 (a) 60 and 90

$$\begin{array}{r} \text{Sol - } 2 \overline{) 60, 90} \\ \underline{2 30, 45} \\ 3 \overline{) 15, 45} \\ \underline{3 5, 15} \\ 5 \overline{) 5, 5} \\ \underline{1 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 3 \times 3 \times 5 \\ &= 180 \text{ Ans.} \end{aligned}$$

Q7 (a) 12, 36, 48

$$\begin{array}{r} \text{Sol - } 2 \overline{) 12, 36, 48} \\ \underline{2 6, 18, 24} \\ 2 \overline{) 3, 9, 12} \\ \underline{2 3, 9, 6} \\ 3 \overline{) 3, 9, 3} \\ \underline{3 1, 3, 1} \\ 3 \overline{) 1, 3, 1} \\ \underline{1 1, 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144 \\ &\text{Ans} \end{aligned}$$

Q8 (a) 21, 27, 30

$$\begin{array}{r} \text{Sol - } 2 \overline{) 21, 27, 30} \\ \underline{3 21, 27, 15} \\ 3 \overline{) 7, 9, 5} \\ \underline{3 7, 3, 5} \\ 5 \overline{) 7, 1, 5} \\ \underline{7 7, 1, 1} \\ 7 \overline{) 7, 1, 1} \\ \underline{1 1, 1} \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 2 \times 3 \times 3 \times 3 \times 5 \times 7 \\ &= 1890 \text{ Ans.} \end{aligned}$$

Q5(a) 75, 125 and 150

Sol -

$$\begin{array}{r|rrrr}
 2 & 75 & 125 & 150 & \\
 3 & 75 & 125 & 75 & \\
 5 & 25 & 125 & 25 & \\
 5 & 5 & 25 & 5 & \\
 5 & 1 & 5 & 1 & \\
 & 1 & 1 & 1 &
 \end{array}$$

L.C.M. = $2 \times 3 \times 5 \times 5 \times 5$
 = 750 Ans.

Q5(b) 56, 140 and 210

Sol -

$$\begin{array}{r|rrrr}
 2 & 56 & 140 & 210 & \\
 2 & 28 & 70 & 105 & \\
 2 & 14 & 35 & 105 & \\
 5 & 7 & 35 & 105 & \\
 5 & 7 & 35 & 35 & \\
 7 & 7 & 7 & 7 & \\
 & 1 & 1 & 1 &
 \end{array}$$

L.C.M. = $2 \times 2 \times 2 \times 3 \times 5 \times 7$
 = 840 Ans.

Q6(a) 12, 15

Sol -

$$\begin{array}{r|rr}
 2 & 12 & 15 \\
 2 & 6 & 15 \\
 3 & 3 & 15 \\
 3 & 1 & 5 \\
 5 & 1 & 1 \\
 & 1 & 1
 \end{array}$$

L.C.M. = $2 \times 2 \times 3 \times 5$
 = 60 Ans.

Q6(b) 60, 80 and 180

Sol -

$$\begin{array}{r|rrrr}
 2 & 60 & 80 & 180 & \\
 2 & 30 & 40 & 90 & \\
 2 & 15 & 20 & 45 & \\
 2 & 15 & 10 & 45 & \\
 3 & 15 & 5 & 45 & \\
 3 & 5 & 5 & 15 & \\
 5 & 5 & 5 & 5 & \\
 & 1 & 1 & 1 &
 \end{array}$$

L.C.M. = $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5$
 = 720 Ans.

Q6(c) 108, 120 and 132

Sol -

$$\begin{array}{r|rrrr}
 2 & 108 & 120 & 132 & \\
 2 & 54 & 60 & 66 & \\
 2 & 27 & 30 & 33 & \\
 3 & 27 & 15 & 33 & \\
 3 & 9 & 5 & 11 & \\
 3 & 3 & 5 & 11 & \\
 5 & 1 & 5 & 11 & \\
 11 & 1 & 1 & 11 & \\
 & 1 & 1 & 1 &
 \end{array}$$

L.C.M. = $2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 11$
 = 11880 Ans.

Q6(d) 24, 36

Sol -

$$\begin{array}{r|rr}
 2 & 24 & 36 \\
 2 & 12 & 18 \\
 2 & 6 & 9 \\
 3 & 3 & 9 \\
 3 & 1 & 3 \\
 & 1 & 1
 \end{array}$$

L.C.M. = $2 \times 2 \times 2 \times 3 \times 3$
 = 72 Ans.

Q6 (c) 39, 78

Sol -

$$\begin{array}{r|rr}
 2 & 39 & 78 \\
 3 & 39 & 39 \\
 13 & 13 & 13 \\
 & 1 & 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 3 \times 13 \\
 &= 78 \text{ Ans.}
 \end{aligned}$$

Q7 (a) 8, 12 and 48

Sol -

$$\begin{array}{r|rrr}
 2 & 8 & 12 & 48 \\
 2 & 4 & 6 & 24 \\
 3 & 2 & 3 & 12 \\
 2 & 1 & 3 & 6 \\
 3 & 1 & 3 & 2 \\
 & 1 & 1 & 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 3 \\
 &= 48 \text{ Ans.}
 \end{aligned}$$

Q6 (b) 30, 150 and 210

Sol -

$$\begin{array}{r|rrr}
 2 & 30 & 150 & 210 \\
 3 & 15 & 75 & 105 \\
 5 & 5 & 25 & 35 \\
 5 & 1 & 5 & 7 \\
 7 & 1 & 1 & 7 \\
 & 1 & 1 & 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 3 \times 5 \times 5 \times 7 \\
 &= 1050 \text{ Ans.}
 \end{aligned}$$

Q7 (c) 105, 135 and 240

Sol -

$$\begin{array}{r|rrr}
 2 & 105 & 135 & 240 \\
 2 & 105 & 135 & 120 \\
 2 & 105 & 135 & 60 \\
 2 & 105 & 135 & 30 \\
 3 & 105 & 135 & 15 \\
 3 & 35 & 45 & 5 \\
 3 & 35 & 15 & 5 \\
 5 & 35 & 5 & 5 \\
 7 & 7 & 1 & 1 \\
 & 1 & 1 & 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 7 \\
 &= 15120 \text{ Ans.}
 \end{aligned}$$

2) @ Sol -

Required number = L.C.M. of 14, 21

$$\begin{array}{r|rr} 2 & 14 & 21 \\ 3 & 7 & 21 \\ 7 & 7 & 7 \\ \hline & 1 & 1 \end{array}$$

$$\text{L.C.M.} = 2 \times 3 \times 7 = 42$$

Required number = 42

6) Sol -

Required number = L.C.M. of 27 and 36

$$\begin{array}{r|rr} 2 & 27 & 36 \\ 2 & 27 & 18 \\ 3 & 27 & 9 \\ 3 & 9 & 3 \\ 3 & 3 & 1 \\ \hline & 1 & 1 \end{array}$$

$$\text{L.C.M.} = 2 \times 2 \times 3 \times 3 \times 3 = 108$$

Required number = 108

Q2 Sol -

Required number = L.C.M. of 4, 8 and 12

$$\begin{array}{r|l}
 2 & 4, 8, 12 \\
 2 & 2, 4, 6 \\
 2 & 1, 2, 3 \\
 3 & 1, 1, 3 \\
 & 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 3 \\
 &= 24
 \end{aligned}$$

Required number = 24

(b) Sol -

Required number will be the L.C.M. of 14, 28 and 56

$$\begin{array}{r|l}
 2 & 14, 28, 56 \\
 2 & 7, 14, 28 \\
 2 & 7, 7, 14 \\
 7 & 7, 7, 7 \\
 & 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 7 \\
 &= 56
 \end{aligned}$$

Required number = 56

Q3(a)

$$\text{Required number} = [\text{L.C.M. of 36 and 54}] + 5$$

$$\begin{array}{r|l}
 2 & 36, 54 \\
 \hline
 2 & 18, 27 \\
 \hline
 3 & 9, 27 \\
 \hline
 3 & 3, 9 \\
 \hline
 3 & 1, 3 \\
 \hline
 & 1, 1
 \end{array}$$

$$\text{L.C.M.} = 2 \times 2 \times 3 \times 3 \times 3 = 108$$

$$\begin{aligned}
 \text{Required number} &= 108 + 5 \\
 &= 113 \text{ Ans.}
 \end{aligned}$$

Q3(b) Sol -

$$\text{Required number} = [\text{L.C.M. of 24, 48 and 64}] + 2$$

$$\begin{array}{r|l}
 2 & 24, 48, 64 \\
 \hline
 2 & 12, 24, 32 \\
 \hline
 2 & 6, 12, 16 \\
 \hline
 2 & 3, 6, 8 \\
 \hline
 2 & 3, 3, 4 \\
 \hline
 2 & 3, 3, 2 \\
 \hline
 3 & 3, 3, 1 \\
 \hline
 & 1, 1, 1
 \end{array}$$

$$\begin{aligned}
 \text{L.C.M.} &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \\
 &= 192
 \end{aligned}$$

$$\begin{aligned}
 \text{Required number} &= 192 + 2 \\
 &= 194 \text{ Ans.}
 \end{aligned}$$

"You have to take the calculated risk, to earn something." - Dhruvhami Anand

Q4 Sol —

Smallest number of chairs, will be
L.C.M. of 9 and 15

$$\begin{array}{r|l} 3 & 9, 15 \\ \hline 3 & 3, 5 \\ \hline 5 & 1, 5 \\ \hline & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 3 \times 3 \times 5 \\ &= 45 \end{aligned}$$

Ans = 45 chairs

Q5 Sol —

Required number will be the L.C.M.
of 2 and 3

$$\begin{array}{r|l} 2 & 2, 3 \\ \hline 3 & 1, 3 \\ \hline & 1, 1 \end{array}$$

$$\text{L.C.M.} = 2 \times 3 = 6$$

Ans - The first tile on which both
land = 6

26 Sol —

Required number will be the L.C.M.
of 15 and 25

$$\begin{array}{r|l} 3 & 15, 25 \\ 5 & 5, 25 \\ 5 & 1, 5 \\ & 1, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M.} &= 3 \times 5 \times 5 \\ &= 75 \end{aligned}$$

Ans — Both mobile phones ring
together again after 75 min