

Exc- 6-A.

Prime factorization Method.

Find H.C.F.

Q. (5) @ 30 and 75

Sol-

$$\begin{array}{r|l} 2 & 30 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 3 & 75 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

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

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

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

(5) 64 and 80

$$\text{Sol-} \begin{array}{r|l} 2 & 64 \\ \hline 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array} \qquad \begin{array}{r|l} 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

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

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

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

© 36 and 81

Sol -

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

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

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

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

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

db) 56 and 84

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

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

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

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

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

Q6@ 45 and 105

$$\begin{array}{r} \text{Sol} - 3 \overline{) 45} \\ \underline{3} \\ 15 \\ \underline{5} \\ 5 \\ \underline{5} \\ 1 \end{array}$$

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

$45 = 3 \times 3 \times 5$

$105 = 3 \times 5 \times 7$

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

b) 48 and 128

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

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

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

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

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

© 72 and 126

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

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

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

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

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

db) 66 and 198

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

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

$66 = 2 \times 3 \times 11$

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

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

Q7 @ 165 and 275

Sol -

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

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

$165 = 3 \times 5 \times 11$

$275 = 5 \times 5 \times 11$

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

(b) 120 and 168

Sol -

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

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

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

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

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

(c) 240 and 300

Sol -

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

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

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

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

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

(d) 130 and 208

Sol -

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

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

$130 = 2 \times 5 \times 13$

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

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

Q8 @ 36, 48 and 84

Sol -

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

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

$$\begin{array}{r} 2 \overline{)84} \\ \underline{2} \\ 4 \\ \underline{4} \\ 21 \\ \underline{21} \\ 7 \\ \underline{7} \\ 1 \end{array}$$

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

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

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

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

Q 8 (b) 38, 57 and 76

Sol -

$$\begin{array}{r} 2 \overline{)38} \\ 19 \overline{)19} \\ \hline 1 \end{array}$$

$$\begin{array}{r} 3 \overline{)57} \\ 19 \overline{)19} \\ \hline 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)76} \\ 2 \overline{)38} \\ 19 \overline{)19} \\ \hline 1 \end{array}$$

$38 = 2 \times 19$

$57 = 3 \times 19$

$76 = 2 \times 2 \times 19$

$H.C.F. = 19 \text{ Ans.}$

(c) 54, 72 and 90

Sol -

$$\begin{array}{r} 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ \hline 1 \end{array}$$

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

$$\begin{array}{r} 2 \overline{)90} \\ 3 \overline{)45} \\ 3 \overline{)15} \\ 5 \overline{)5} \\ \hline 1 \end{array}$$

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

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

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

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

d) 63, 81 and 108

Sol -

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

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

$$\begin{array}{r} 2 \overline{)108} \\ 2 \overline{)54} \\ 3 \overline{)27} \\ 3 \overline{)9} \\ 3 \overline{)3} \\ \hline 1 \end{array}$$

$63 = 3 \times 3 \times 7$

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

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

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

(e) 120, 128 and 496

Sol -

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

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

$$\begin{array}{r} 2 \overline{)496} \\ 2 \overline{)248} \\ 2 \overline{)124} \\ 2 \overline{)62} \\ 31 \overline{)31} \\ \hline 1 \end{array}$$

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

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

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

$H.C.F. = 2 \times 2 \times 2 = 8 \text{ Ans.}$

8) 132, 154 and 176

Sol -

$\begin{array}{r} 2 \overline{) 132} \\ \underline{266} \\ 333 \\ \underline{111} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{) 154} \\ \underline{777} \\ 111 \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{) 176} \\ \underline{288} \\ 244 \\ \underline{222} \\ 111 \\ \underline{111} \\ 1 \end{array}$
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132 = 2 x 2 x 3 x 11

154 = 2 x 7 x 11

176 = 2 x 2 x 2 x 2 x 11

H.C.F. = 2 x 11 = 22 Ans.

9) 130, 195 and 390

Sol -

$\begin{array}{r} 2 \overline{) 130} \\ \underline{565} \\ 1313 \\ \underline{1} \end{array}$	$\begin{array}{r} 3 \overline{) 195} \\ \underline{565} \\ 1313 \\ \underline{1} \end{array}$	$\begin{array}{r} 2 \overline{) 390} \\ \underline{3195} \\ 565 \\ \underline{1313} \\ 1 \end{array}$
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130 = 2 x 5 x 13

195 = 3 x 5 x 13

390 = 2 x 3 x 5 x 13

H.C.F. = 5 x 13 = 65 Ans.

10) 210, 240 and 360

Sol -

$\begin{array}{r} 2 \overline{) 210} \\ \underline{3105} \\ 535 \\ \underline{77} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{) 240} \\ \underline{2120} \\ 260 \\ \underline{230} \\ 315 \\ \underline{55} \\ 1 \end{array}$	$\begin{array}{r} 2 \overline{) 360} \\ \underline{2180} \\ 290 \\ \underline{345} \\ 315 \\ \underline{55} \\ 1 \end{array}$
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210 = 2 x 3 x 5 x 7

240 = 2 x 2 x 2 x 2 x 3 x 5

360 = 2 x 2 x 2 x 3 x 3 x 5

H.C.F. = 2 x 3 x 5 = 30 Ans.

Find the H.C.F.

Q.9 (a) 39, 93

Sol -

$$\begin{array}{r|l} 3 & 39 \\ \hline 13 & 13 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 93 \\ \hline 31 & 31 \\ \hline & 1 \end{array}$$

39 = 3 × 13

93 = 3 × 31

H.C.F. = 3 Ans.

(b) 42, 140.

$$\begin{array}{r|l} 2 & 42 \\ \hline 3 & 21 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 140 \\ \hline 2 & 70 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

42 = 2 × 3 × 7

140 = 2 × 2 × 5 × 7

H.C.F. = 2 × 7 = 14 Ans.

(c) 385, 490

Sol -

$$\begin{array}{r|l} 5 & 385 \\ \hline 7 & 77 \\ \hline 11 & 11 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 490 \\ \hline 5 & 245 \\ \hline 7 & 49 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

385 = 5 × 7 × 11

490 = 2 × 5 × 7 × 7

H.C.F. = 5 × 7 = 35 Ans.

Q.10 (a)

(b)

36, 420 and 900

Sol -

$$\begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 420 \\ \hline 2 & 210 \\ \hline 3 & 105 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 900 \\ \hline 2 & 450 \\ \hline 3 & 225 \\ \hline 3 & 75 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

36 = 2 × 2 × 3 × 3

420 = 2 × 2 × 3 × 5 × 7

900 = 2 × 2 × 3 × 3 × 5 × 5

H.C.F. = 2 × 2 × 3 = 12 Ans.

⑥ 60, 270 and 390

Sol -

$$\begin{array}{r} 2 \overline{) 60} \\ \underline{2 \ 30} \\ 3 \ 15 \\ \underline{3 \ 15} \\ 5 \ 5 \\ \underline{5 \ 5} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{) 270} \\ \underline{2 \ 135} \\ 3 \ 45 \\ \underline{3 \ 15} \\ 5 \ 5 \\ \underline{5 \ 5} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{) 390} \\ \underline{2 \ 195} \\ 5 \ 65 \\ \underline{5 \ 13} \\ 13 \ 13 \\ \underline{13 \ 13} \\ 1 \end{array}$$

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

$$270 = 2 \times 3 \times 3 \times 3 \times 5$$

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

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

⑦ 75, 150 and 225

Sol -

$$\begin{array}{r} 3 \overline{) 75} \\ \underline{3 \ 25} \\ 5 \ 5 \\ \underline{5 \ 5} \\ 1 \end{array} \quad \begin{array}{r} 2 \overline{) 150} \\ \underline{2 \ 75} \\ 3 \ 75 \\ \underline{3 \ 25} \\ 5 \ 25 \\ \underline{5 \ 5} \\ 5 \ 5 \\ \underline{5 \ 5} \\ 1 \end{array} \quad \begin{array}{r} 3 \overline{) 225} \\ \underline{3 \ 75} \\ 5 \ 25 \\ \underline{5 \ 5} \\ 5 \ 5 \\ \underline{5 \ 5} \\ 1 \end{array}$$

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

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

$$225 = 3 \times 3 \times 5 \times 5$$

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