

Exercise - 11

1. (a) 140 and 196

$$\begin{array}{r} 2 \overline{) 140} \\ 2 \overline{) 70} \\ 5 \overline{) 35} \\ 7 \overline{) 7} \\ 1 \end{array} \qquad \begin{array}{r} 2 \overline{) 196} \\ 2 \overline{) 98} \\ 7 \overline{) 49} \\ 7 \overline{) 7} \\ 1 \end{array}$$

$$140 = \underline{2 \times 2 \times 5 \times 7 \times 1}$$

$$\del{196} \quad 196 = \underline{2 \times 2 \times 7 \times 7 \times 1}$$

$$\therefore \text{HCF} = 2 \times 2 \times 7 \times 1 = 28$$

(c) 216 and 630

$$\begin{array}{r} 2 \overline{) 216} \\ 2 \overline{) 108} \\ 2 \overline{) 54} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \end{array} \qquad \begin{array}{r} 2 \overline{) 630} \\ 3 \overline{) 315} \\ 3 \overline{) 105} \\ 5 \overline{) 35} \\ 7 \end{array}$$

$$216 = 2 \times 2 \times \underline{2 \times 3 \times 3 \times 3}$$

$$630 = \underline{2 \times 3 \times 3 \times 5}$$

$$\therefore \text{HCF} = 2 \times 3 \times 3 = 18$$

(b) 352 and 192

$$\begin{array}{r} 2 \overline{) 352} \\ 2 \overline{) 176} \\ 2 \overline{) 88} \\ 2 \overline{) 44} \\ 2 \overline{) 22} \\ 11 \end{array} \qquad \begin{array}{r} 2 \overline{) 192} \\ 2 \overline{) 96} \\ 2 \overline{) 48} \\ 2 \overline{) 24} \\ 2 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \end{array}$$

$$352 = \underline{2 \times 2 \times 2 \times 2 \times 2 \times 11}$$

$$192 = \underline{2 \times 2 \times 2 \times 2 \times 2 \times 3}$$

$$\therefore \text{HCF} = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

(d) 540, 315 and 360

$$\begin{array}{r} 2 \overline{) 540} \\ 2 \overline{) 270} \\ 3 \overline{) 135} \\ 3 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \end{array} \qquad \begin{array}{r} 3 \overline{) 315} \\ 3 \overline{) 105} \\ 5 \overline{) 35} \\ 7 \end{array} \qquad \begin{array}{r} 2 \overline{) 360} \\ 2 \overline{) 180} \\ 2 \overline{) 90} \\ 3 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \end{array}$$

$$540 = 2 \times 2 \times 3 \times \underline{3 \times 3 \times 5}$$

$$315 = \underline{3 \times 3 \times 5 \times 7}$$

$$360 = 2 \times 2 \times 2 \times \underline{3 \times 3 \times 5}$$

$$\therefore \text{HCF} = 3 \times 3 \times 5 = 45$$

1. (e) 216, 324 and 1350

$$\begin{array}{r} 2 \overline{) 216} \\ 2 \overline{) 108} \\ 2 \overline{) 54} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \end{array}$$

$$\begin{array}{r} 2 \overline{) 324} \\ 2 \overline{) 162} \\ 3 \overline{) 81} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1350} \\ 3 \overline{) 675} \\ 3 \overline{) 225} \\ 3 \overline{) 75} \\ 5 \overline{) 25} \\ 5 \end{array}$$

$$216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

$$324 = 2 \times 2 \times 3 \times 3 \times 3 \times 3$$

$$1350 = 2 \times 3 \times 3 \times 3 \times 5 \times 5$$

$$\therefore \text{HCF} = 2 \times 3 \times 3 \times 3 = 54$$

2. (a) 390 and 663

$$\begin{array}{r} 2 \overline{) 390} \\ 3 \overline{) 195} \\ 5 \overline{) 65} \\ 13 \end{array}$$

$$\begin{array}{r} 3 \overline{) 663} \\ 13 \overline{) 221} \\ 17 \end{array}$$

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

$$663 = 3 \times 13 \times 17$$

$$\therefore \text{HCF} = 3 \times 13 = 39$$

(b) 856 and 936

$$\begin{array}{r} 2 \overline{) 856} \\ 2 \overline{) 428} \\ 2 \overline{) 214} \\ 107 \end{array}$$

$$\begin{array}{r} 2 \overline{) 936} \\ 2 \overline{) 468} \\ 2 \overline{) 234} \\ 3 \overline{) 117} \\ 3 \overline{) 39} \\ 13 \end{array}$$

$$856 = 2 \times 2 \times 2 \times 107$$

$$936 = 2 \times 2 \times 2 \times 3 \times 3 \times 13$$

$$\therefore \text{HCF} = 2 \times 2 \times 2 = 8$$

(c) 837 and 1134

$$\begin{array}{r} 3 \overline{) 837} \\ 3 \overline{) 279} \\ 3 \overline{) 93} \\ 31 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1134} \\ 3 \overline{) 567} \\ 3 \overline{) 189} \\ 3 \overline{) 63} \\ 3 \overline{) 21} \\ 7 \end{array}$$

$$837 = 3 \times 3 \times 3 \times 31$$

$$1134 = 2 \times 3 \times 3 \times 3 \times 3 \times 7$$

$$\therefore \text{HCF} = 3 \times 3 \times 3 = 27$$

(d) 504 and 5292

$$\begin{array}{r} 2 \overline{) 504} \\ 2 \overline{) 252} \\ 2 \overline{) 126} \\ 3 \overline{) 63} \\ 3 \overline{) 21} \\ 7 \end{array}$$

$$\begin{array}{r} 2 \overline{) 5292} \\ 2 \overline{) 2646} \\ 3 \overline{) 1323} \\ 3 \overline{) 441} \\ 3 \overline{) 147} \\ 7 \overline{) 49} \\ 7 \end{array}$$

$$504 = 2 \times 2 \times 2 \times 3 \times 3 \times 7$$

$$5292 = 2 \times 2 \times 3 \times 3 \times 3 \times 7 \times 7$$

$$\therefore \text{HCF} = 2 \times 2 \times 3 \times 3 \times 7 = 252$$

(e) 775 and 1800

$$\begin{array}{r} 5 \overline{) 775} \\ 5 \overline{) 155} \\ 31 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1800} \\ 2 \overline{) 900} \\ 2 \overline{) 450} \\ 3 \overline{) 225} \\ 3 \overline{) 75} \\ 5 \overline{) 25} \\ 5 \end{array}$$

$$775 = 5 \times 5 \times 31$$

$$1800 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$$

$$\therefore \text{HCF} = 5 \times 5 = 25$$

(f) 1435 and 3535

$$\begin{array}{r} 5 \overline{) 1435} \\ 7 \overline{) 287} \\ 41 \end{array}$$

$$\begin{array}{r} 5 \overline{) 3535} \\ 7 \overline{) 707} \\ 101 \end{array}$$

$$1435 = 5 \times 7 \times 41$$

$$3535 = 5 \times 7 \times 101$$

$$\therefore \text{HCF} = 5 \times 7 = 35$$

9. (g) 7625 and 8175

$$\begin{array}{r} 5 \overline{) 7625} \\ 5 \overline{) 1525} \\ 5 \overline{) 305} \\ 61 \end{array} \quad \begin{array}{r} 5 \overline{) 8175} \\ 5 \overline{) 1635} \\ 3 \overline{) 327} \\ 109 \end{array}$$

$$7625 = 5 \times 5 \times 5 \times 61$$

$$8175 = 5 \times 5 \times 3 \times 109$$

$$\therefore \text{HCF} = 5 \times 5$$

(h) 1020 and 11594

$$\begin{array}{r} 2 \overline{) 1020} \\ 2 \overline{) 510} \\ 3 \overline{) 255} \\ 5 \overline{) 85} \\ 17 \end{array} \quad \begin{array}{r} 2 \overline{) 11594} \\ 17 \overline{) 5797} \\ 11 \overline{) 341} \\ 31 \end{array}$$

$$1020 = 2 \times 2 \times 3 \times 5 \times 17$$

$$11594 = 2 \times 17 \times 11 \times 31$$

$$\therefore \text{HCF} = 2 \times 17 = 34$$

(i) 5610 and 10465

$$\begin{array}{r} 2 \overline{) 5610} \\ 3 \overline{) 2805} \\ 5 \overline{) 935} \\ 11 \overline{) 187} \\ 17 \end{array} \quad \begin{array}{r} 5 \overline{) 10465} \\ 13 \overline{) 2093} \\ 23 \overline{) 161} \\ 7 \end{array}$$

$$5610 = 2 \times 3 \times 5 \times 11 \times 17$$

$$10465 = 5 \times 13 \times 23 \times 7$$

$$\therefore \text{HCF} = 5$$

(j) 12350 and 6845

$$\begin{array}{r} 2 \overline{) 12350} \\ 5 \overline{) 6175} \\ 5 \overline{) 1235} \\ 13 \overline{) 247} \\ 19 \end{array} \quad \begin{array}{r} 5 \overline{) 6845} \\ 1369 \end{array}$$

$$12350 = 2 \times 5 \times 5 \times 13 \times 19$$

$$6845 = 5 \times 1369$$

$$\therefore \text{HCF} = 5$$

(k) 10568 and 9247

$$\begin{array}{r} 2 \overline{) 10568} \\ 2 \overline{) 5284} \\ 2 \overline{) 2642} \\ 1321 \end{array} \quad \begin{array}{r} 7 \overline{) 9247} \\ 1321 \end{array}$$

$$10568 = 2 \times 2 \times 2 \times 1321$$

$$9247 = 1321$$

$$\therefore \text{HCF} = 1321$$

(i) 3536 and 33150

$$\begin{array}{r} 2 \overline{) 3536} \\ 2 \overline{) 1768} \\ 2 \overline{) 884} \\ 2 \overline{) 442} \\ 13 \overline{) 221} \\ 17 \end{array} \quad \begin{array}{r} 2 \overline{) 33150} \\ 3 \overline{) 16575} \\ 5 \overline{) 5525} \\ 5 \overline{) 1105} \\ 13 \overline{) 221} \\ 17 \end{array}$$

$$3536 = 2 \times 2 \times 2 \times 2 \times 13 \times 17$$

$$33150 = 2 \times 3 \times 5 \times 5 \times 13 \times 17$$

$$\therefore \text{HCF} = 2 \times 13 \times 17 = 442$$

3. (a) 256, 442 and 940

$$\begin{array}{r} 2 \overline{) 256} \\ 2 \overline{) 128} \\ 2 \overline{) 64} \\ 2 \overline{) 32} \\ 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \end{array} \quad \begin{array}{r} 2 \overline{) 442} \\ 13 \overline{) 221} \\ 17 \end{array} \quad \begin{array}{r} 2 \overline{) 940} \\ 2 \overline{) 470} \\ 3 \overline{) 235} \\ 5 \overline{) 117.5} \\ 19 \end{array}$$

$$\therefore 256 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$442 = 2 \times 13 \times 17$$

$$940 = 2 \times 2 \times 3 \times 5 \times 19$$

$$\therefore \text{HCF} = 2$$

(b) 192, 576 and 1760

$$\begin{array}{r} 2 \overline{) 192} \\ 2 \overline{) 96} \\ 2 \overline{) 48} \\ 2 \overline{) 24} \\ 2 \overline{) 12} \\ 2 \overline{) 6} \\ 2 \overline{) 3} \\ 3 \end{array} \quad \begin{array}{r} 2 \overline{) 576} \\ 2 \overline{) 288} \\ 2 \overline{) 144} \\ 2 \overline{) 72} \\ 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \end{array} \quad \begin{array}{r} 2 \overline{) 1760} \\ 2 \overline{) 880} \\ 2 \overline{) 440} \\ 2 \overline{) 220} \\ 2 \overline{) 110} \\ 5 \overline{) 55} \\ 11 \end{array}$$

$$\therefore 192 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

$$576 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$1760 = 2 \times 2 \times 2 \times 2 \times 5 \times 11$$

$$\therefore \text{HCF} = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

3. (c) 639, 873 and 747

$$\begin{array}{r} 3 \overline{)639} \\ \underline{3213} \\ 71 \end{array} \quad \begin{array}{r} 3 \overline{)873} \\ \underline{3291} \\ 97 \end{array} \quad \begin{array}{r} 3 \overline{)747} \\ \underline{3249} \\ 83 \end{array}$$

$$639 = 3 \times 3 \times 71$$

$$873 = 3 \times 3 \times 97$$

$$747 = 3 \times 3 \times 83$$

$$\therefore \text{HCF} = 3 \times 3 = 9$$

(e) 176, 1100 and 4444

$$\begin{array}{r} 2 \overline{)176} \\ \underline{288} \\ 11 \end{array} \quad \begin{array}{r} 2 \overline{)1100} \\ \underline{2550} \\ 5275 \\ \underline{555} \\ 11 \end{array} \quad \begin{array}{r} 2 \overline{)4444} \\ \underline{2222} \\ 11111 \\ \underline{11111} \\ 101 \end{array}$$

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

$$1100 = 2 \times 2 \times 5 \times 5 \times 11$$

$$4444 = 2 \times 2 \times 11 \times 101$$

$$\text{H.C.F} = 2 \times 2 \times 11 = 44$$

(g) 432, 1134 and 1347

$$\begin{array}{r} 2 \overline{)432} \\ \underline{216} \\ 2108 \\ \underline{254} \\ 3127 \\ \underline{319} \\ 3 \end{array} \quad \begin{array}{r} 2 \overline{)1134} \\ \underline{3567} \\ 3189 \\ \underline{363} \\ 321 \\ 7 \end{array} \quad \begin{array}{r} 3 \overline{)1347} \\ \underline{3449} \\ 3163 \\ \underline{321} \\ 7 \end{array}$$

$$\therefore 432 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

$$1134 = 2 \times 3 \times 3 \times 3 \times 3 \times 7$$

$$1347 = 3 \times 449$$

$$\therefore \text{HCF} = 3$$

4. (a) 1233, 726, 531 and 345

$$\begin{array}{r} 3 \overline{)1233} \\ \underline{3411} \\ 137 \end{array} \quad \begin{array}{r} 2 \overline{)726} \\ \underline{3363} \\ 11121 \\ \underline{11} \end{array} \quad \begin{array}{r} 3 \overline{)531} \\ \underline{177} \end{array} \quad \begin{array}{r} 3 \overline{)345} \\ \underline{5115} \\ 23 \end{array}$$

$$1233 = 3 \times 3 \times 137$$

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

$$531 = 3 \times 177$$

$$345 = 3 \times 5 \times 23$$

$$\therefore \text{HCF} = 3$$

(d) 612, 816 and 448

$$\begin{array}{r} 2 \overline{)612} \\ \underline{2306} \\ 3153 \\ \underline{1751} \\ 3 \end{array} \quad \begin{array}{r} 2 \overline{)816} \\ \underline{2408} \\ 2204 \\ \underline{2102} \\ 1751 \\ \underline{1751} \\ 3 \end{array} \quad \begin{array}{r} 2 \overline{)448} \\ \underline{2224} \\ 2112 \\ \underline{2156} \\ 228 \\ \underline{214} \\ 7 \end{array}$$

$$612 = 2 \times 2 \times 3 \times 3 \times 17$$

$$816 = 2 \times 2 \times 2 \times 2 \times 3 \times 17$$

$$448 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7$$

$$\therefore \text{HCF} = 2 \times 2 = 4$$

(f) 808, 568 and 1112

$$\begin{array}{r} 2 \overline{)808} \\ \underline{2404} \\ 2202 \\ \underline{101} \end{array} \quad \begin{array}{r} 2 \overline{)568} \\ \underline{2284} \\ 2142 \\ \underline{71} \end{array} \quad \begin{array}{r} 2 \overline{)1112} \\ \underline{2556} \\ 2278 \\ \underline{139} \end{array}$$

$$808 = 2 \times 2 \times 2 \times 101$$

$$568 = 2 \times 2 \times 2 \times 71$$

$$1112 = 2 \times 2 \times 2 \times 139$$

$$\therefore \text{HCF} = 2 \times 2 \times 2 = 8$$

(h) 345, 726 and 531

$$\begin{array}{r} 3 \overline{)345} \\ \underline{5115} \\ 23 \end{array} \quad \begin{array}{r} 2 \overline{)726} \\ \underline{3363} \\ 11121 \\ \underline{11} \end{array} \quad \begin{array}{r} 3 \overline{)531} \\ \underline{177} \end{array}$$

$$345 = 3 \times 5 \times 23$$

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

$$531 = 3 \times 177$$

$$\therefore \text{HCF} = 3$$

1326, 3094, 4420 and 5577

(b) ~~845, 726 and 531~~

$$\begin{array}{r} 3 \overline{)1326} \\ \underline{2442} \\ 13221 \\ \underline{17} \end{array} \quad \begin{array}{r} 2 \overline{)3094} \\ \underline{31547} \\ 1509 \end{array} \quad \begin{array}{r} 2 \overline{)4420} \\ \underline{2210} \\ 51105 \\ \underline{13221} \\ 11 \end{array} \quad \begin{array}{r} 3 \overline{)5577} \\ \underline{13185} \\ 13143 \\ \underline{11} \end{array}$$

$$1326 = 2 \times 3 \times 13 \times 17$$

$$3094 = 2 \times 3 \times 509$$

$$4420 = 2 \times 2 \times 5 \times 11 \times 13$$

$$5577 = 3 \times 13 \times 13 \times 11$$

$$\therefore \text{HCF} = 1$$