

Exercise - 12

1. (a) 25, 30 and 40

$$\begin{array}{r} 5 \overline{) 25} \\ 5 \\ \hline \end{array} \quad \begin{array}{r} 5 \overline{) 30} \\ 3 \overline{) 6} \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 5 \overline{) 40} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \\ \hline \end{array}$$

$$25 = 5 \times 5$$

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

$$40 = 2 \times 2 \times 2 \times 5$$

$$\begin{aligned} \text{LCM} &= 5 \times 5 \times 2 \times 2 \times 2 \times 2 \times 3 \\ &= 1200 \end{aligned}$$

(b) 42, 36 and 21

$$\begin{array}{r} 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \overline{) 21} \\ 7 \\ \hline \end{array}$$

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

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

$$21 = 3 \times 7$$

$$\begin{aligned} \text{LCM} &= 3 \times 2 \times 3 \times 2 \times 3 \times 7 \times 7 \\ &= 3528 \end{aligned}$$

(c) 26, 14, and 91

$$\begin{array}{r} 2 \overline{) 26} \\ 13 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{) 14} \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \overline{) 91} \\ 13 \\ \hline \end{array}$$

$$26 = 2 \times 13$$

$$14 = 2 \times 7$$

$$91 = 7 \times 13$$

$$\text{LCM} = 2 \times 2 \times 7 \times 7 \times 13 \times 13$$

(d) 36, 60, 84 and 90

$$\begin{array}{r} 2 \overline{) 36} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{) 60} \\ 2 \overline{) 30} \\ 3 \overline{) 15} \\ 5 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{) 84} \\ 2 \overline{) 42} \\ 3 \overline{) 21} \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{) 90} \\ 3 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \\ \hline \end{array}$$

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

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

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

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

$$\begin{aligned} \text{LCM} &= 2 \times 3 \times 2 \times 2 \times 3 \times 5 \times 2 \times 7 \times 3 \times 5 \\ &= 75600 \end{aligned}$$

2. (a) 21, 63 and 105

$$\begin{array}{r} 3 \overline{) 21, 63, 105} \\ 7 \overline{) 7, 21, 35} \\ 1, 3, 5 \\ \hline \end{array}$$

$$\text{LCM} = 7 \times 3 \times 1 \times 3 \times 5 = 315$$

(c) 12, 18 and 90

$$\begin{array}{r} 2 \overline{) 12, 18, 90} \\ 3 \overline{) 6, 9, 45} \\ 2, 3, 15 \\ \hline \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 3 \times 2 \times 3 \times 15 \\ &= 540 \end{aligned}$$

(b) 64, 96 and 112

$$\begin{array}{r} 2 \overline{) 64, 96, 112} \\ 2 \overline{) 32, 48, 56} \\ 2 \overline{) 16, 24, 28} \\ 2 \overline{) 8, 12, 14} \\ 4, 6, 7 \\ \hline \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 2 \times 2 \times 4 \times 6 \times 7 \\ &= 2688 \end{aligned}$$

(d) 45, 35 and 21

$$\begin{array}{r} 1 \overline{) 45, 35, 21} \\ 45, 35, 21 \\ \hline \end{array}$$

$$\begin{aligned} \text{LCM} &= 45 \times 35 \times 21 \\ &= 33075 \end{aligned}$$

3. (a) 15, 45, 125 and 225

$$\begin{array}{r} 5 \overline{) 15, 45, 125, 225} \\ 3, 9, 25, 45 \end{array}$$

$$\begin{aligned} \text{LCM} &= 5 \times 3 \times 9 \times 25 \times 45 \\ &= 151,875 \end{aligned}$$

(c) 12, 36, 16, 24 and 32

$$\begin{array}{r} 2 \overline{) 12, 36, 16, 24, 32} \\ 2 \overline{) 6, 18, 8, 12, 16} \\ 3, 9, 4, 6, 8 \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 3 \times 9 \times 4 \times 6 \times 8 \\ &= 20736 \end{aligned}$$

(e) 4, 6, 8, 12, 18 and 90

$$\begin{array}{r} 2 \overline{) 4, 6, 8, 12, 18, 90} \\ 2, 3, 4, 6, 9, 45 \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 3 \times 4 \times 6 \times 9 \times 45 \\ &= 116640 \end{aligned}$$

(b) 44, 126, 198 and 280

$$\begin{array}{r} 2 \overline{) 44, 126, 198, 280} \\ 22, 63, 99, 140 \end{array}$$

$$\begin{aligned} \text{LCM} &= 2 \times 22 \times 63 \times 99 \times 140 \\ &= 33419920 \end{aligned}$$

(d) 18, 28, 35, 60 and 100

$$\begin{array}{r} 2 \overline{) 18, 28, 35, 60, 100} \\ 18, 28, 35, 60, 100 \end{array}$$

$$\begin{aligned} \text{LCM} &= 18 \times 28 \times 35 \times 60 \times 100 \\ &= 105,840,000 \end{aligned}$$

(f) 16, 90, 91, 280 and 455

$$\begin{array}{r} 1 \overline{) 16, 90, 91, 280, 455} \\ 16, 90, 91, 280, 455 \end{array}$$

$$\begin{aligned} \text{LCM} &= 16 \times 90 \times 91 \times 280 \times 455 \\ &= 16,694,496,000 \end{aligned}$$

4. (a) 64 and 80

$$\begin{array}{r} 2 \overline{) 64} \\ 2 \overline{) 32} \\ 2 \overline{) 16} \\ 2 \overline{) 8} \\ 2 \overline{) 4} \\ 2 \end{array} \quad \begin{array}{r} 2 \overline{) 80} \\ 2 \overline{) 40} \\ 2 \overline{) 20} \\ 2 \overline{) 10} \\ 2 \overline{) 5} \end{array}$$

$$\text{HCF} = 2 \times 2 \times 2 \times 2 = 16$$

$$\text{LCM} = 16 \times 2 \times 2 \times 5 = 320$$

(c) 420 and 360

$$\begin{array}{r} 2 \overline{) 420} \\ 2 \overline{) 210} \\ 3 \overline{) 105} \\ 5 \overline{) 35} \\ 7 \end{array} \quad \begin{array}{r} 2 \overline{) 360} \\ 2 \overline{) 180} \\ 2 \overline{) 90} \\ 3 \overline{) 45} \\ 3 \overline{) 15} \\ 5 \end{array}$$

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

$$\text{LCM} = 60 \times 7 \times 3 \times 2 = 2520$$

(b) 110 and 88

$$\begin{array}{r} 2 \overline{) 110} \\ 11 \overline{) 55} \\ 5 \end{array} \quad \begin{array}{r} 2 \overline{) 88} \\ 2 \overline{) 44} \\ 2 \overline{) 22} \\ 11 \end{array}$$

$$\text{HCF} = 2 \times 11 = 22$$

$$\begin{aligned} \text{LCM} &= 22 \times 2 \times 2 \times 2 \times 5 \\ &= 880 \end{aligned}$$

(d) 204 and 255

$$\begin{array}{r} 2 \overline{) 204} \\ 2 \overline{) 102} \\ 17 \overline{) 51} \\ 3 \end{array} \quad \begin{array}{r} 3 \overline{) 255} \\ 5 \overline{) 85} \\ 17 \end{array}$$

$$\text{HCF} = 3 \times 17 = 51$$

$$\begin{aligned} \text{LCM} &= 51 \times 2 \times 2 \times 5 \\ &= 1020 \end{aligned}$$

5. (a) HCF of two numbers is = 4

LCM of ~~two~~ no. is = 24

one no. is 8.

$$\text{HCF} \times \text{LCM} = 4 \times 24 = 96$$

$\therefore 96 = 8 \times$  the other no.

$$\text{The other no.} = 96 \div 8 = 12$$

(b) HCF of two nos. is = 5

LCM is = 165

one no. is = 55

$$\text{HCF} \times \text{LCM} = 5 \times 165 = 825$$

$\therefore 825 = 55 \times$  the other no.

$$\therefore \text{The other no.} = 825 \div 55 = 15$$