

Exercise A

Write the following numbers as a product of their prime factors:

1. 20

6. 99

2. 18

7. 90

3. 30

8. 84

4. 32

9. 70

5. 100

10. 110

Exercise B

Find the HCF and the LCM of the following pairs of numbers:

1. 18 and 24

2. 50 and 75

3. 30 and 45

4. 36 and 54

5. 28 and 42

Exercise A

1. 20

$$\begin{array}{r|l} 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$20 = 2 \times 2 \times 5$$

$$\text{or } 20 = 2^2 \times 5$$

2. 18

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

$$18 = 2 \times 3 \times 3$$

$$\text{or } 18 = 2 \times 3^2$$

3. 30

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

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

4. 32

$$\begin{array}{r|l} 2 & 32 \\ \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$\text{or } 32 = 2^5$$

5. 100

$$\begin{array}{r|l} 2 & 100 \\ \hline 2 & 50 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$100 = 2 \times 2 \times 5 \times 5$$

$$\text{or } 100 = 2^2 \times 5^2$$

6. 99

$$\begin{array}{r|l} 3 & 99 \\ \hline 3 & 33 \\ \hline 11 & 11 \\ \hline & 1 \end{array}$$

$$99 = 3 \times 3 \times 11$$

$$\text{or } 99 = 3^2 \times 11$$

PRIME FACTORS, HCF AND LCM

EXERCISE

7. 90

$$\begin{array}{r|l}
 2 & 90 \\
 \hline
 3 & 45 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}$$

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

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

8. 84

$$\begin{array}{r|l}
 2 & 84 \\
 \hline
 2 & 42 \\
 \hline
 3 & 21 \\
 \hline
 7 & 7 \\
 \hline
 & 1
 \end{array}$$

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

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

9. 70

$$\begin{array}{r|l}
 2 & 70 \\
 \hline
 5 & 35 \\
 \hline
 7 & 7 \\
 \hline
 & 1
 \end{array}$$

$70 = 2 \times 5 \times 7$

10. 110

$$\begin{array}{r|l}
 2 & 110 \\
 \hline
 5 & 55 \\
 \hline
 11 & 11 \\
 \hline
 & 1
 \end{array}$$

$110 = 2 \times 5 \times 11$

Exercise B

1. 18 and 24

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

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

$18 = 2 \times 3 \times 3$

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

$HCF = 2 \times 3 = 6$

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

PRIME FACTORS, HCF AND LCMEXERCISE

1. Alternative method for LCM

$$18 \quad 36 \quad 54 \quad (72) \quad 90$$

$$24 \quad 48 \quad (72) \quad 96$$

$$\text{LCM} = 72$$

2. 50 and 75

$$\begin{array}{r|l} 2 & 50 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

$$50 = 2 \times (5) \times (5)$$

$$75 = 3 \times (5) \times (5)$$

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

$$\text{LCM} = 2 \times 5 \times 5 \times 3 = 150$$

Alternative method for LCM

$$50 \quad 100 \quad (150) \quad 200$$

$$75 \quad (150)$$

$$\text{LCM} = 150$$

3. 30 and 45

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

$$\begin{array}{r|l} 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

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

$$45 = 3 \times (3) \times (5)$$

$$\text{HCF} = 3 \times 5 = 15$$

$$\text{LCM} = 2 \times 3 \times 5 \times 3 = 90$$

Alternative method for LCM

$$30 \quad 60 \quad (90) \quad 120$$

$$45 \quad (90)$$

$$\text{LCM} = 90$$

PRIME FACTORS, HCF AND LCM

EXERCISE

4. 36 and 54

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

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

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

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

$$HCF = 2 \times 3 \times 3 = 18$$

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

Alternative method for LCM

$$36 \quad 72 \quad 108 \quad 144$$

$$54 \quad 108$$

$$LCM = 108$$

5. 28 and 42

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

$$\begin{array}{r|l} 2 & 42 \\ \hline 3 & 21 \\ 7 & 7 \\ \hline & 1 \end{array}$$

$$28 = 2 \times 2 \times 7$$

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

$$HCF = 2 \times 7 = 14$$

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

Alternative method for LCM

$$28 \quad 56 \quad 84 \quad 112$$

$$42 \quad 84 \quad 126$$

$$LCM = 84$$