

Chapter- 8

Factors and multiples

WORKSHEET

A. Fill in the blanks :

- a) 1, 3, 5 and 15 are called Factors of 15.
- b) All even numbers are divisible by 2.
- c) 1 is a number which is neither prime nor composite.
- d) 18 is a multiple of 3 and 6.
- e) Numbers that have only two factors, 1 and the number itself, are called prime numbers.

B. Match the following :

Column - A

Column - B

- | | |
|---------------------------|--------------|
| 1. Factor of 35 | i) 1 |
| 2. Multiple of 5 | ii) infinite |
| 3. Factor of every number | iii) 50 |
| 4. Smallest prime number | iv) 7 |
| 5. Factors of a number | v) 2 |

C. Do as directed:

- a) Find the H.C.F. of 16, 24 and 85.

Solution:

Handwritten solution for finding H.C.F. of 16, 24, and 85:

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16 = 2 x 2 x 2 x 2 x 1
24 = 2 x 2 x 2 x 3 x 1
85 = 5 x 17 x 1

HCF = 2 x 2 x 2 = 8
    
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Division method for 16, 24, and 85:

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16 | 24 | 85
  2 | 12 | 17
    2 | 6  | 1
      3 | 3  |
        1 | 1  |
    
```

HCF = 2

b) Find the L.C.M. of 16, 28 and 32

Solution:

$$\begin{array}{r|l}
 2 & 16, 28, 32 \\
 \hline
 2 & 8, 14, 16 \\
 \hline
 2 & 4, 7, 8 \\
 \hline
 2 & 2, 7, 4 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r|l}
 2 & 1, 7, 2 \\
 \hline
 7 & 1, 7, 1 \\
 \hline
 & 1, 1, 1 \\
 \hline
 \end{array}$$

LCM $2 \times 2 \times 2 \times 2 \times 7 \times 2 = 224$

c) The H.C.F. of two numbers is 5 and L.C.M. is 60. If one of the numbers is 20, find the other number.

Solution:

$$\frac{\text{HCF} \times \text{LCM}}{\text{first no.}} = \text{other no.}$$

$$\frac{5 \times 60}{20} = 15$$

$$\begin{array}{r}
 15 \\
 \times 20 \\
 \hline
 300 \\
 \hline
 \end{array}$$

d) Find the greatest number which divides 90 and 405 without leaving a remainder.

Solution:

$$\begin{array}{r}
 9 \overline{) 90} \\
 \underline{5 \ 10} \\
 5 \ 5 \\
 \underline{5 \ 5} \\
 1
 \end{array}$$

$$\begin{array}{r}
 5 \overline{) 405} \\
 \underline{9 \ 81} \\
 3 \ 9 \\
 \underline{3 \ 9} \\
 3 \ 3 \\
 \underline{3 \ 3} \\
 0
 \end{array}$$

$$\begin{array}{l}
 90 = 9 \times 5 \times 5 \times 1 \\
 405 = 9 \times 5 \times 3 \times 3 \times 1 \\
 \text{HCF} = 9 \times 5 = 45
 \end{array}$$

e) Three bells of a temple began ringing at 9 a.m. The first bell rings after every 30 minutes and the second one rings after every 45 minutes and the third one rings after every hour. At what time will they ring together again?

Solution:

$$1 \text{ hr} = 60 \text{ mins}$$

$$\text{LCM} = 5 \times 3 \times 2 \times 2 \times 3 = 180 \text{ mins.}$$

$$60 \text{ mins} = 1 \text{ hr.}$$

$$180 \text{ mins} = \frac{180}{60} = 3 \text{ hr.}$$

$$9 \text{ am} + 3 \text{ hrs} = 12 \text{ Noon}$$

So, they will ring together again in 12 Noon

$$\begin{array}{r|l}
 5 & 30, 45, 60 \\
 \hline
 3 & 6, 9, 12 \\
 \hline
 2 & 2, 3, 4 \\
 \hline
 2 & 1, 3, 2 \\
 \hline
 3 & 1, 3, 1 \\
 \hline
 \end{array}$$