HW
27-06-2021

HCF and LCM

HW Ex- 8(B)

(1) i) 16 and 35

F16 = 1, 2, 4, 8, 16
F35 = 1, 5, 7, 35

CF = 1
HCF = 1

ii) 25 and 20

F25 = 1, 5, 25
F20 = 1, 2, 4, 5, 10, 20

CF = 1
HCF = 1

iii) 27 & 75

F27 = 1, 3, 9, 27
F75 = 1, 3, 5, 15, 25, 75

HCF = 3

iv) 8, 12 & 18

F8 = 1, 2, 4, 8
F12 = 1, 2, 3, 4, 6, 12
F18 = 1, 2, 3, 6, 18
HCF = 2

v) 24, 36, 45, 60

F24 = 1, 2, 3, 4, 6, 8, 12, 24
F36 = 1, 2, 3, 4, 6, 9, 12, 18, 36
F45 = 1, 3, 5, 9, 15, 45
F60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

HCF = 3

(2) i) 5 and 8

$$\begin{array}{r|l} 1 & 5 \\ \hline & 5 \end{array} \qquad \begin{array}{r|l} 2 & 8 \\ \hline 2 & 4 \\ \hline 1 & 2 \\ \hline & 2 \end{array}$$

$5 = 1 \times 5$

$8 = 2 \times 2 \times 2 \times 1$

HCF = 1

ii) 24 and 49

$$\begin{array}{r|l} 2 & 24 \\ \hline 2 & 12 \\ \hline 2 & 6 \\ \hline 1 & 3 \\ \hline & 3 \end{array} \qquad \begin{array}{r|l} 7 & 49 \\ \hline 1 & 7 \\ \hline & 7 \end{array}$$

$24 = 3 \times 2 \times 2 \times 2 \times 1$

$49 = 7 \times 7 \times 1$

HCF = 1

iii) 40, 60 and 80

$$\begin{array}{r|l} 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 1 & 5 \\ \hline & 5 \end{array} \qquad \begin{array}{r|l} 2 & 60 \\ \hline 3 & 30 \\ \hline 2 & 10 \\ \hline 1 & 5 \\ \hline & 5 \end{array} \qquad \begin{array}{r|l} 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 1 & 5 \\ \hline & 5 \end{array}$$

$40 = 2 \times 2 \times 2 \times 1 \times 5$

$60 = 2 \times 2 \times 3 \times 5 \times 1$

$80 = 2 \times 2 \times 2 \times 2 \times 5 \times 1$

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

(IV) 48, 84, 88

2 | 48	2 | 84	2 | 88
2 | 24	2 | 42	2 | 44
2 | 12	3 | 21	2 | 22
2 | 6	1 | 7	1 | 11
1 | 3	7	11
3		

$48 = 2 \times 2 \times 2 \times 2 \times 3 \times 1$

$84 = 2 \times 2 \times 3 \times 1 \times 7$

$88 = 2 \times 2 \times 2 \times 1 \times 11$

H.C.F $= 2 \times 2 = 4$

(V) 12, 16, 28

2 | 12	2 | 16	2 | 28
2 | 6	2 | 8	2 | 14
3 | 3	2 | 4	7 | 7
1	2 | 2	1
	1	

$12 = 2 \times 2 \times 3 \times 1$

$16 = 2 \times 2 \times 2 \times 2 \times 1$

$28 = 2 \times 2 \times 7 \times 1$

HCF $= 2 \times 2 = 4$

③ Find HCF using division method

16 and 24

```
     1
16 ) 24
    -16      2
      8 )   16
           -16
             0
```

H.C.F = 8

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(ii) 18 and 30

$$18 \overline{)30}\ (1$$
$$-18$$
$$12 \overline{)18}\ (1$$
$$-12$$
$$6 \overline{)12}\ (2$$
$$-12$$
$$0$$

H.C.F = 6

(iii) 7, 14, 24

$$7 \overline{)14}\ (2$$
$$-14$$
$$0$$

$$7 \overline{)24}\ (3$$
$$-21$$
$$3 \overline{)7}\ (2$$
$$-6$$
$$1 \overline{)3}\ (3$$
$$3$$
$$0$$

H.C.F = 1

(iv) 70, 80, 120 and 150

$$70 \overline{)80}\ (1$$
$$-70$$
$$10 \overline{)70}\ (7$$
$$-70$$
$$0$$

$$120 \overline{)150}\ (1$$
$$120$$
$$30 \overline{)120}\ (4$$
$$-120$$
$$0$$

$$10 \overline{)30}\ (3$$
$$-30$$
$$0$$

H.C.F = 10

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32, 56, 46

(V) 32 ⟌ 56 (1)
−32
24 ⟌ 32 (1)
−24
8 ⟌ 24 (3)
−24
0

8 ⟌ 46 (5)
−40
6 ⟌ 8 (1)
6
2 ⟌ 6 (3)
−6
0

H.C.F = 2

(5) Find H.C.F by using own method

(i) 5 | 45, 75, 135
3 | 9, 15, 27
3, 5, 9

H.C.F = 5×3 = 15

(ii) 2 | 48, 36, 96
2 | 24, 18, 48
3 | 12, 9, 24
4, 3, 8

H.C.F = 2×2×3 = 12

(iii) 3 | 66, 33, 132
11 | 22, 11, 44
2, 1, 4

H.C.F = 11×3 = 33

(iv) 2 | 24, 36, 60, 132
2 | 12, 18, 30, 66
3 | 6, 9, 15, 33
2, 3, 5, 11

H.C.F = 2×2×3 = 12

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(v) 30, 60, 90, 105

$$\begin{array}{r|l} 5 & 30, 60, 90, 105 \\ 3 & 6, 12, 18, 21 \\ & 2, 4, 6, 7 \end{array}$$

H.C.F = 5 × 3 = 15

(5) The greatest number that divides 180, 225, 315 = 45

$$\begin{array}{r|l} 5 & 180, 225, 315 \\ 3 & 36, 45, 63 \\ 3 & 12, 15, 21 \\ & 4, 5, 7 \end{array}$$

~~H.C.F = 3×3×5 = 45~~

2) 180 (90
−18
00
0
0

180) 225 (1
−180
45) 315 (7
−315
0

(6) 45 = 1, 3, 5, 9, 15, 45
56 = 1, 2, 4, 7, 8, 14, 28, 56
HCF (45, 56) = 1, So. 45 and 56 are co-prime
These have only 1 common factor that is 1. So they are co-prime number.

(7) 15 = 1, 3, 5, 15
16 = 1, 2, 4, 8, 16
21 = 1, 3, 7, 21
28 = 1, 2, 4, 7, 14, 28

15 & 16, 21 & 28, 16 & 28, 15 & 28, 21 & 15, 15 & 21, are co-prime no

(8) $93 - 3 = 90$

$111 - 3 = 108$

$129 - 3 = 126$

$$
\begin{array}{r|l}
90 & 108 \quad (1 \\
-\ 90 & \\
\hline
18 & 126 \quad (7 \\
 & -\ 126 \\
\hline
 & 0
\end{array}
$$

H.C.F = 18