

## Exercise 8C(8)

### Evaluated Questions

1- using the common factors method, find the H.C.F of

i] 16 and 35: 16: 1, 2, 4, 8 and 16

35: 1, 5, 7 and 35

The common factors between these numbers  
= 1

ii] 25 and 20: 25: 1, 5 and 25

20: 1, 2, 4, 5, 10 and 20

Common factors = 5

5 and 8:  $B = 5$   
 $P_8 = 2 \times 2 \times 2$

No common prime factors between 5 and 8

iii) 24 and 49:  $P_{24} = 2 \times 2 \times 3 \times 2$   
 $P_{49} = 7 \times 7$

No common prime factors between 24 and 49.

iv) 40, 60 and 80:  $P_{40} = 2 \times 5 \times 2 \times 2$   
 $P_{60} = 2 \times 5 \times 3 \times 2$   
 $P_{80} = 2 \times 5 \times 2 \times 2 \times 2$

Common factors of 40, 60 and 80 =  $2 \times 5 \times 2$

v) 18 and 24:

$$\begin{array}{r} 2 \overline{) 18} \\ \underline{2 \times 9} \\ 18 \\ \underline{2 \times 9} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 24} \\ \underline{2 \times 12} \\ 24 \\ \underline{2 \times 12} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 16} \\ \underline{2 \times 8} \\ 16 \\ \underline{2 \times 8} \\ 0 \end{array}$$

$$\begin{array}{r} 2 \overline{) 24} \\ \underline{2 \times 12} \\ 24 \\ \underline{2 \times 12} \\ 0 \end{array}$$

$$\begin{array}{r} 16 \overline{) 24} \\ \underline{-16} \\ 8 \\ 8 \overline{) 16} \\ \underline{-8} \\ 8 \\ \underline{-8} \\ 0 \end{array}$$

vi) 18 and 36:

$$\begin{array}{r} 18 \overline{) 36} \\ \underline{-18} \\ 18 \end{array}$$

$$\begin{array}{r} 12 \overline{) 18} \\ \underline{-12} \\ 6 \end{array}$$

$$\begin{array}{r} 6 \overline{) 12} \\ \underline{-6} \\ 6 \\ \underline{-6} \\ 0 \end{array}$$

4- Use a method of your own choice to find the H.C.F of:

i- 45, 75 and 135

Ans:  $P_{45}: 3 \times 3 \times 5$

$P_{75}: 3 \times 5 \times 5$

$P_{135}: 3 \times 3 \times 3 \times 5$

The common factors =  $3 \times 5 = 15$

ii- 48, 36 and 96:  $P_{48}: 2 \times 2 \times 2 \times 2 \times 3$

$P_{36}: 2 \times 2 \times 3 \times 3$

$P_{96}: 2 \times 2 \times 2 \times 2 \times 2 \times 3$

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

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5- 180 | 225 | 1 |

180	225	1	1
180			
45	180	4	
	-180		
	0		

45	315	7
	-315	
	0	

since last division is 45

$\therefore$  HCF = 45

6- 45: 1, 3, 5, 15, 9 and 45

56: 1, 2, 4, 8, 7, 28, 14, and 56

They have no common factors other than 1. Any two numbers that do not have a common prime factor are called co-prime numbers. Since, in these numbers 45 and 56 have no common prime factors.  $\therefore$  this shows that 45 and 56 are co-prime numbers.

7. 15 and 18, 16 and 21, 15 and 28  
8. Since,  $93 - 3 = 90$ ,  $111 - 3 = 108$  and  $129 - 3 = 126$   
∴ Required number is H.C.F. of 90, 108 and 126.

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SMallest Common