Exercise 8(B)

i) 16 and 35

Factors of 16 = 1, 2, 4, 8, 16
Factors of 35 = 1, 5, 7, 35
The common factors between 16 and 35 = 1
HCF - 1.

ii) common factors of 25 and 20 are as follows:

F(25) = 1, 5, 25.
F(20) = 1, 2, 4, 5, 10, 20.
The common factors between 25 and 20 = 1, 5,

∴ The HCF of 25 and 20 = 5.

iii) Common factor between 27 and 75 are as follows.

F(27) = 1, 3, 9 27
F(75) = 1, 3, 5, 15, 25, 75.
The common factors between 27 and 75 = 1, 3.

∴ The HCF of 27 and 75 = 3.

iv) Common factors between 8, 12, and 18 are as follows:

F=8 = 1, 2, 4, 8

F=12 = 1, 2, 3, 4, 6, 12
F=18 = 1, 2, 3, 6, 9, 18
common factors between 8, 12, and 18 = 1, 2.

• The HCF of 8, 12, 18 = 2

v) Common factors between 24, 36, 45 and 60 are as follows.

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

Common Factors between 24, 36, 45, and 60 = 1, 3

∴ The HCF of 24, 36, 45, 60 = 3.

2 i) The prime factors of 5 and 8 are as follows:

$P_5 = 5$

$P_8 = 2 \times 2 \times 2$

No. common prime factors between 5 and 8
Hence, HCF of 5 and 8 = 1

ii) The prime factor of 24 and 49 are as follow:

$P_{24} = 2 \times 2 \times 2 \times 3$

$P_{49} = 7 \times 7$

No common prime factors between 24 and 49
Hence HCF of 24 and 49 = 1.

iii) The prime factor of 40, 60 and 80.

$P_{40} = 1, 2, 4, 5, 8, 10, 20, 40$

$P_{60} = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 10 \times 12 \times 15 \times 30 \times 60 \times 20$

$P_{80} = 1 \times 2 \times 4 \times 5 \times 8 \times 10 \times 16 \times 20 \times 40 \times$

2, 4, 5, 10, 20 are the common factor between 40, 60 and 80.

Hence HCF of 40, 60 and 80 = 20

iii) 48, The prime factor of 48, 84, and 88

P_{48} - 1x2x4x6x8x12x24x48
P_{84} - 1x2x3x4x6x7x12x14x21x28x42
P_{88} - 1x2x8x4x11x44x88x22

2, 4 are the common prime factors between 48, 84 and 88.

Hence, H.C.F of 48, 84, 88 = 4.

iv) The prime factor of 12, 16 and 28.

P_{12} - 1, 2, 3, 4, 6, 12
P_{16} - 1, 2, 4, 8, 16.
P_{28} - 1, 2, 4, 7, 14, 28.

2, 4, are the common prime factor between 12, 16 and 28

Hence HCF of 12, 16, 28 = 4.

AHW

i) 45, 75 and 135

3 | 45	3 | 75	3 | 135
3 | 15	5 | 25	3 | 45
5	5	3 | 15
		5

45 = 3x3x5
75 = 3x5x5 135 = 3x3x3x5
common factor 5, 3

HCF = 15

ii) 48, 36 and 96

2 | 48	2 | 36	2 | 96
2 | 24	2 | 18	2 | 48
2 | 12	3 | 9	2 | 24
2 | 6	3	2 | 12
3		2 | 6
		3

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

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

$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

$2 \times 2 \times 3$ are the common factor.

HCF = 12

22.6.21

Division Methods

Evaluation Question

Q3. i) 16 and 24

$$16 \overline{)24}\ (1$$
$$\underline{16}$$
$$8 \overline{)16}\ (2$$
$$\underline{16}$$
$$0$$

Here the last division is 8
Hence, HCF of 16 and 24 = 8

ii) 18 and 30

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

Hence, HCF of 18 and 30 is 6.

iii) 7, 14 and 24

Using Division method, we get.
Here, last division is 7.
Hence, HCF of 7, 14 and 24 = 1

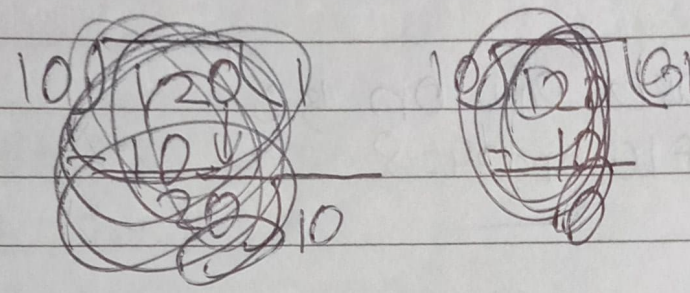
$$7 \overline{)14}\ (2$$
$$-\ 14$$
$$0$$

iv) 70, 80, 120 and 150

HCF of 80 and 70 = 10

$$\begin{array}{r} 70\overline{)80}\,(1 \\ -70 \\ \hline 10\overline{)70}\,(7 \\ -70 \\ \hline 0 \end{array}$$

HCF of 120 and 10 = 10.



$$\begin{array}{r} 10\overline{)120}\,(12 \\ -120 \\ \hline 0 \end{array}$$

HCF of 150 and 10 = 10

$$\begin{array}{r} 10\overline{)150}\,(15 \\ -150 \\ \hline 0 \end{array}$$

So the HCF of 70, 80, 120 and 150 is 10.

v) 32, 56 and 46

HCF of 32 and 56 = 8

32)56(1
-32
24)32(1
-24
8)24(3
-24
0

HCF of 8 and 46 = 2

8)46(5
-40
6)8(1
-6
2)6(3
-6
0

vi) 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 of 45, 75 and 135 = 3×5.
∴ H.C.F of 45, 75 and 135 = 15.

ii) 48, 36 and 96

Ans. $P_{48} = 2 \times 2 \times 2 \times 2 \times 3$

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

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

The common factors of 48, 36 and 96 = $2 \times 2 \times 3$

HCF of 48, 36, and 96 = $2 \times 2 \times 3$

HCF of 48, 36, 96 = 12.

iii) 66, 33, and 132

3	66, 33, 132
11	33, 11, 44
	3, 1, 4

The common factors of 66, 33, 132 = 11, 3

HCF of 66, 33, 132 is 33

iv) 24, 36, 60 and 132

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

The common factors of 24, 36, 60, 132 are 2, 2, 3

The HCF of 24, 36, 60, 32 is R

v/ 30, 60, 90, 105

3	30, 60, 90, 105
5	10, 20, 30, 35
	2, 4, 6, 7

The common factor of 30, 60, 90, 105 are 5, 3

The HCF of 30, 60, 90, 105 is 15.

5. The greatest number that divides each of 180, 225 and 315 will be the HCF of 180, 225 and 315.

Using division method, the HCF of 180, 225 and 180, 225 and 315 are shown below.

180	225	1
	180	
45	180	4
	180	
	0	

45	315	7
	315	
	0	

Since last division is 45.
∴ H.C.F of 180, 225 and 315 = 45

ATW

6. HCF of 45 and 56 =

45 - (1) 3, 5, 9, 15, 45
56 - (1) 2, 4, 7, 8, 14, 28, 56

common factor - 1
So the IL a ~~com~~ co-prime number.

8. First, decrease the leaving remainder 3 from numbers 93, 111, 129 to find the required number.

93 - 3 = 90

111 - 3 = 108
129 - 3 = 126

In each case, the HCF of 90, 108 and 126 will be the greatest ~~no~~ number that will divide 93, 111, 129 leaving remainder 3

Using division method, that CF of 90 108 and 126 is given below.