EXERCISE 8 (B)

1. Using the comon factor method, find the H.C.F of :

(i) 16 and 35 :- 1

factors of 16 - 1, 2, 4, 8 and 16.
factors of 35 - 1, 5, 7 and 35.

Hcf of 16 and 35 is 1

(ii) 25 and 20.

factors of 25 - 1, 5 and 25
factors " 20 - 1, 2, 4, 5, 10 and 20

Hcf of 25 and 20 = 5.

(iii) 27 and 75

factors of 27 - 1, 3, 9 and 27
" " 75 - 1, 3, 5, 15, 25 and 75

HCF of 27 and 75 = 3

(iv) 8, 12, 18

factors of 8 = 1, 2, 4 and 8
" " 12 = 1, 2, 3, 4, 6 and 12.
" " 18 = 1, 2, 3, 6, 9, and 18

Hcf of 8, 12 and 18 = 2.

(v) 24, 36, 45, 60.

factors of 24 = 1, 2, 3, 4, 6, 8, 12 and 24
" " 36 = 1, 2, 3, 4, 6, 9, 12, 18 and 36
" " 45 = 1, 3, 5, 9, 15 and 45.
" " 60 = 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60

2. Using the prime factor method, find the H.C.F of:

(i) 5 and 8.

The prime factors of 5 and 8 are as follows:

$P_5 - 5 \times 1$

$P_8 - 2 \times 2 \times 1 \times 2$

So, the H.C.F. of 5 and 8 is 1.

(ii) 24 and 49.

The prime factors of 24 and 49 are as follows:

$P_{24} - 1 \times 2 \times 2 \times 2 \times 3$

$P_{49} - 1 \times 7 \times 7$

So, the H.C.F of 24 and 49 is 1.

(iii) 40, 60 and 80

The prime factors of 40, 60, 80 are as follows:

$P_{40} = 2 \times 2 \times 2 \times 5$

$P_{60} = 2 \times 2 \times 3 \times 5$

$P_{80} = 2 \times 2 \times 2 \times 5 \times 2$

So, the HCF of 40, 60, and 80, is 20

(v) 30, 60, 90, 105

The prime factors of 30, 60, 90, 105 are as follows:

$P_{30} = 2 \times 3 \times 5$

$P_{60} = 2 \times 3 \times 5 \times 2$

$P_{90} = 2 \times 3 \times 5 \times 3$

$P_{105} = 3 \times 5 \times 7$

So, the prime factors of 30, 60, 90 and 105 ~~are as follows~~ is 15.

3. (i) 16 and 24 -

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

So, the H.C.F of 24 and 16 = 8.

(ii) 18 and 30

```
18)30(1
   18
   12)18(1
    -12
     6)18(3
     -18
      0
```

So, the H.C.F. of 18 and 30 is 6.

(iii) 7, 14 and 24.

```
7)14(2      7)24(3
 -14         -21
  0             3)24(8
                 24
                  0
```

```
3|7|2
 -6
 1.|3|3
   -3
    0
```

So, the H.C.F of 7, 14 and 24 is 1.

(iv) 70, 80, 120 and 150

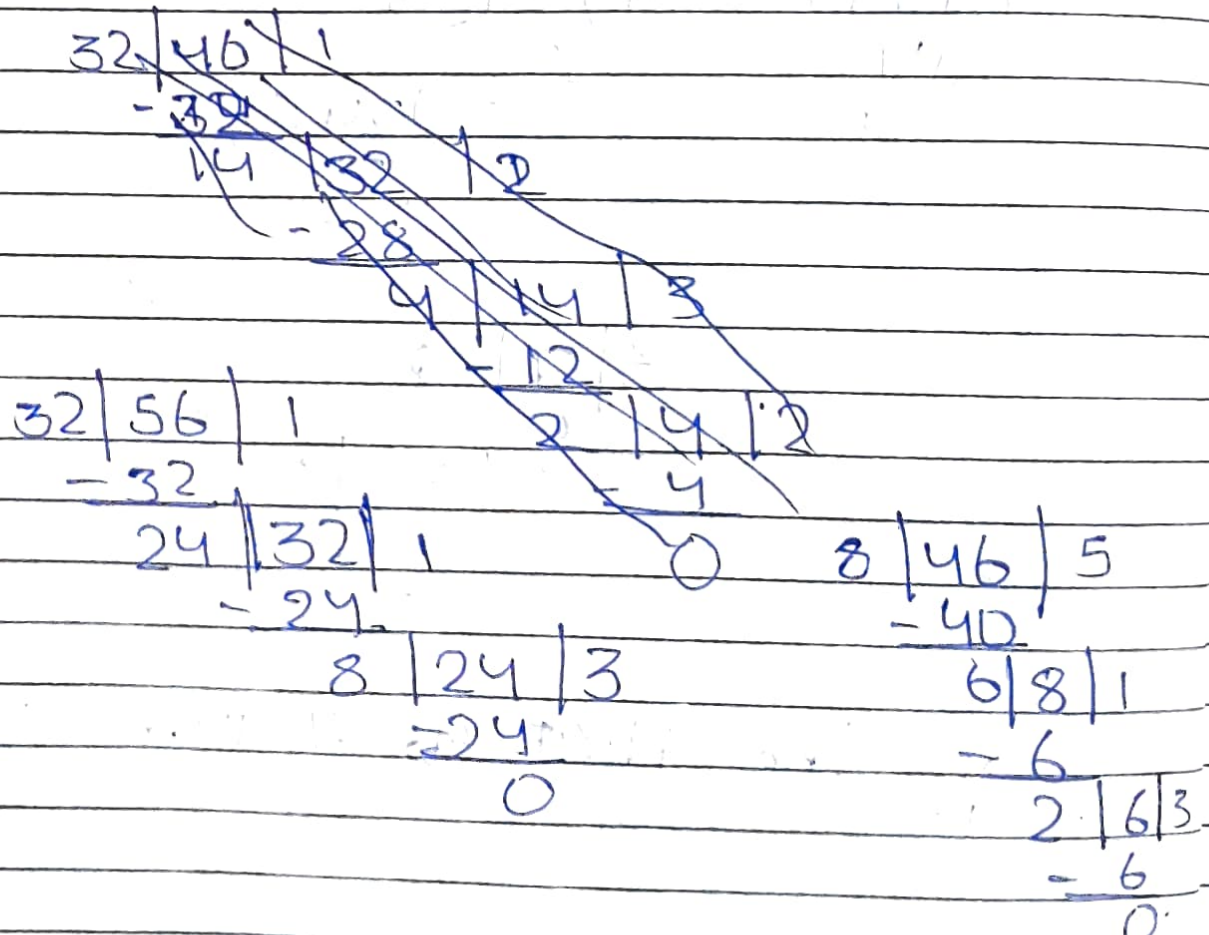
70 | 80 | 1
- 70
10

120 | 150 | 1
- 120
30 | 120 | 4
- 120
0

10 | 30 | 3
- 30
0

So, the H.C.F 70, 80, 120 and 150 = 10

(v) 32, 56 and 46



So, H.C.F of 32, 56 and 46 = 2.

~~5. Find the greatest number that will divide 75, 111 and 129 leaves remainder 3 in~~

5.

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

HCF = $5 \times 3 \times 3 = 45$

So, the greatest number that will divide 180, 225, 315 is $5 \times 3 \times 3 = 45$.

6. Prime factors of $45 = 5 \times 3 \times 3$
" " $56 = 2 \times 2 \times 2 \times 7$

Yes, 45 and 56 are co-prime nos.

7. Prime factors of $15 = 3 \times 5$
" " " $16 = 2 \times 2 \times 2 \times 2$
" " " $21 = 3 \times 7$
" " " $28 = 2 \times 2 \times 7$

So, all pairs of co-prime numbers are 15 and 16; 15 and 28, 16 and 21.

8. Since there will be a remainder of 3 we have to do $93 - 3 = 90$, $111 - 3 = 108$ and $129 - 3 = 126$

2	90, 108, 126
3	45, 54, 63
3	15, 18, 21
	5, 6, 7

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

So, the greatest no. that will divide 93, 111 and 129 leaving a remainder of 3 is 18.