HW

Excercise 8(B)

1. Using common factors method, find the H.C.F of :

(i) 16 and 35

Ans- 16 = (1), 2, 4, 8 and 16

35 = (1) 5, 7 and 35

common factors = 1

H.C.F = 1

(ii) 25 and 20

Ans- 25 = (1) (5), 25

20 = (1), 2, 4 (5), 10, 20

Common factors = 1 and 5

H.C.F. = 5

(iii) 27 and 75

Ans - 27 = (1) (3), 9, 27

75 = (1) (3), 5, 15, 25 and 75

common factors = 1, 3

H.C.F = 3

(iv) 8, 12 and 18

Ans- 8 = (1) (2), 4 and 8

12 = (1), (2), 3, 4, 6, 12

~~Common factors = 1, 2 and 4~~

18 = (1) (2), 3, 6, 9 and 18

Common factors = 1 and 2

H.C.F. = 2

v) 24, 36, 45 and 60

Ans- 24 = (1), 2, (3), 4, 6, 8, 12 and 24

36 = (1), 2, (3), 4, 6, 9, 12, 18, 36

45 = (1) (3), 5, 9, 15 and 45

60 = (1), 2, (3) 4, 5, 6, 10, 12, 15, 20, 30, and 60

Common factors = 1 and 3

H.C.f. = 3

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

i) 5 and 8

Ans- 5 = 1 × 5

8 = 2 × 2 × 2 × 1

~~Common prime factor~~

H.C.F. = 1

ii) 24 and 49

24 = 2 × 2 × 2 × 3 × 1

49 = 7 × 7 × 1

H.C.f = 1

iii) 40, 60, 80

40 = 2 × 2 × 2 × 5

60 = 2 × 2 × 3 × 5

80 = 2 × 2 × 2 × 2 × 5

H.C.f. = 2 × 2 × 5

= 20

iv) 48, 84 and 88

48 = 2 × 2 × 2 × 2 × 3

84 = 2 × 2 × 3 × 7

88 = 2 × 2 × 2 × 11

HCF = 2 × 2

= 4

v) 12, 16 and 28

$12 = 2 \times 2 \times 3$

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

$28 = 2 \times 2 \times 7$

HCF = $2 \times 2 = 4$

3. Using the divison method, find the HCF of the following :

i) 16 and 24

```
16 | 24 | 1
   -16
```

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

H.C.F = 8

ii) 18 and 30

```
18 | 30 | 1
   -18
    12 | 18 | 1
      -12
       6 | 12 | 2
         -12
          0
```

HCF = 6

iii) 7, 14 and 24

```
7 | 14 | 2          7 | 24 | 3
-14                 -21
 0                   3 | 7 | 2
                     -6
                      1 | 3 | 3
                      -3
                       0
```

HCF = 1

iv) 70, 80, 120 and 150

```
70 | 80 | 1          10 | 120 | 12          10 | 150 | 15
-70                   -10                    -10
 10 | 70 | 7          20                     50
 -70                   -20                    -50
  0                     0                      0
```

HCF = 10

v) 32, 56 and 46

```
32 | 56 | 1          8 | 46 | 5
-32                  -40
 24 | 32 | 1          6 | 8 | 1
 -24                   -6
  8 | 24 | 3           2 | 6 | 3
  -24                    -6
   0                      0
```

HCF = 2

Q. Use a method of your own choice to find the HCF.

i) 45, 75 and 135

Ans.

```
45 | 75 | 1          15 | 135 | 9
   -45                 -135
   ----                ----
   30 | 45 | 1          0
     -30
     ---
   15 | 30 | 2
     -30
     ---
      0
```

HCF = 15

ii) 48, 36 and 196

Ans

```
36 | 196 | 5          4 | 48 | 12
   -180                -4
   ----                --
   16 | 36 | 2          8
     -32               -8
     ---               --
    4 | 16 | 4          0
      -16
      ---
       0
```

HCF = 4

iii) 66, 33, 132

```
33 | 132 | 4          33 | 66 | 2
   -132                -66
   ----                ---
      0                  0
```

HCF = 33

iv) 24, 36, 60, 132

Ans.

```
24 | 36 | 1          12 | 60 | 5          12 | 132 | 11
   -24                 -60                 -12
   ----                ---                 ---
   12 | 24 | 2          0                   12
     -24                                    -12
     ---                                    ---
      0                                      0
```

Ans. HCF = 12

4) 30, 60, 90, 105

30 | 60 | 2
-60
0

30 | 90 | 3
-90
0

30 | 105 | 3
-90
15 | 30 | 2
-30
0

HCF = 30

5. ans - 180 | 225 | 1
-180
45 | 180 | 4
-180
0

45 | 315 | 7
-280
35 | 45 | 1
-35
10 | 35 | 3
-30
5 | 10 | 2
-10
0

HCF = 45

6. ans - 45 = 3 x 3 x 5
56 = 2 x 2 x 2 x 7
H.C.F = 1
Therefore, 45 and 56 are co-prime

7. ans- Pairs are = 15, 16 = 28, 15
= 16, 21 = 15, 21
= 21, 28 = 28, 16
HCF of 15 and 16 = 1
HCF of 16 and 21 = 1
HCF of 21 and 28 = 7
HCF of 28 and 15 = 1
HCF of 15 and 21 = 3
HCF of 28 and 16 = 4
Hence, the co-prime pairs are 15 and 16, 16 and 21, 28 and 15.

8. ans- Since, 93 - 3 = 90, 111 - 3 = 108 and 129 - 3 = 126

HCF of 90, 108 and 126

=

```
90 | 108 | 1          18 | 126 | 7
  -90                    -126
  ----                   ----
  18 | 90 | 5            0
     -90
     ---
      0
```

HCF = 18 leaving remainder 3 in each case.