

## Exercise 2.6

### Question: 1

Find the H.C. F of the following numbers using prime factors using prime factorization method:

### Solution:

(i) 144 and 198

Prime factorization of 144 =  $2 \times 2 \times 2 \times 3 \times 3$

Prime factorization of 198 =  $2 \times 3 \times 3 \times 11$

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

(ii) 81 and 117

Prime factorization of 81 =  $3 \times 3 \times 3 \times 3$

Prime factorization of 117 =  $3 \times 3 \times 13$

Therefore, HCF =  $3 \times 3 = 9$

(iii) 84 and 98

Prime factorization of 84 =  $2 \times 2 \times 3 \times 7$

Prime factorization of 98 =  $2 \times 7 \times 7$

Therefore, HCF =  $2 \times 7 = 14$

(iv) 225 and 450

Prime factorization of 225 =  $3 \times 3 \times 5 \times 5$

Prime factorization of 198 =  $2 \times 3 \times 3 \times 5 \times 5$

Therefore, HCF =  $3 \times 3 \times 5 \times 5 = 225$

(v) 170 and 238

Prime factorization of 170 =  $2 \times 5 \times 17$

Prime factorization of 238 =  $2 \times 7 \times 17$

Therefore, HCF =  $2 \times 17 = 34$

(vi) 504 and 980



Prime factorization of 504 =  $2 \times 2 \times 2 \times 3 \times 3 \times 7$

Prime factorization of 980 =  $2 \times 2 \times 5 \times 7 \times 7$

Therefore, HCF =  $2 \times 2 \times 7 = 28$

(vii) 150, 140 and 210

Prime factorization of 150 =  $2 \times 3 \times 5 \times 5$

Prime factorization of 140 =  $2 \times 2 \times 5 \times 7$

Prime factorization of 210 =  $2 \times 3 \times 5 \times 7$

Therefore, HCF =  $2 \times 5 = 10$

(viii) 84, 120 and 138

Prime factorization of 84 =  $2 \times 2 \times 3 \times 7$

Prime factorization of 120 =  $2 \times 2 \times 2 \times 3 \times 5$

Prime factorization of 138 =  $2 \times 3 \times 23$

Therefore, HCF =  $2 \times 3 = 6$

(ix) 106, 159 and 265

Prime factorization of 106 =  $2 \times 53$

Prime factorization of 159 =  $3 \times 53$

Prime factorization of 265 =  $5 \times 53$

Therefore, HCF = 53

## Question: 2

What is the H.C.F of two consecutive?

### Solution:

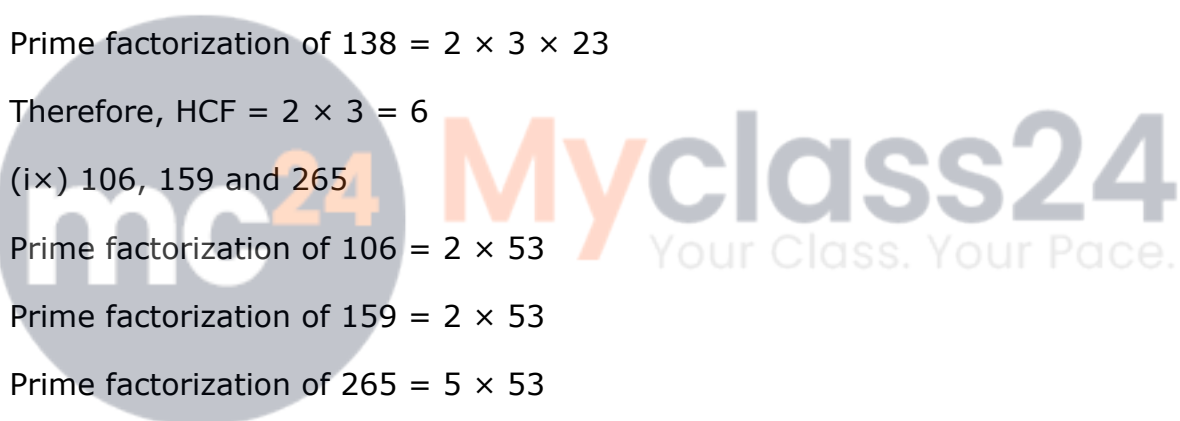
(i) The common factor of two consecutive numbers is always 1.

Therefore, HCF of two consecutive numbers = 1

(ii) The common factors of two consecutive even numbers are 1 and 2.

Therefore, HCF of two consecutive even numbers = 2

(iii) The common factor of two consecutive odd numbers is 1.



Therefore, HCF of two consecutive odd numbers = 1

**Question: 3**

H.C.F of co-primes numbers 4 and 15 was found as follows:

$$4 = 2 \times 2 \text{ and } 15 = 3 \times 5$$

Since there is no common prime factor. So, H.C.F of 4 and 15 is 0. Is the answer correct? If not what is the correct H.C.F?

**Solution:**

No, it is not correct.

We know that HCF of two co-prime number is 1.

4 and 15 are co-prime numbers because the only factor common to them is 1.

Thus, HCF of 4 and 15 is 1.

