

## Class - 6 Ch - 4 Exercise 4.1

1. Fill in the blanks:

(i) A number having exactly two factors is called a .....

**Solution:**

A number having exactly two factors is called a prime number.

(ii) A number having more than two factors is called a .....

**Solution:-**

A number having more than two factors is called a composite number.

(iii) 1 is neither ..... nor .....

**Solution:-**

1 is neither prime nor composite.

(iv) The smallest prime number is .....

**Solution:-**

The smallest prime number is 2.

(v) The smallest odd prime number is .....

**Solution:-**

The smallest odd prime number is 3.

(vi) The smallest composite number is .....

**Solution:-**

The smallest composite number is 4.

(vii) The smallest odd composite number is .....

**Solution:-**

The smallest odd composite number is 9.

(viii) All prime numbers (except 2) are .....

**Solution:-**

All prime numbers (except 2) are odd numbers.

**3. State whether the following statements are true (T) or false (F):**

(i) The sum of three odd numbers is an even number.

**Solution:-**

False

For example, take three odd numbers 1, 3 and 5.

Then, sum of three odd numbers =  $1 + 3 + 5$

= 9 is an odd number

(ii) The sum of two odd numbers and one even number is an even number.

**Solution:-**

True

For example, take two odd numbers 1, 3 and one even number 4.

Then, sum of two odd numbers and one even number =  $1 + 3 + 4$

=  $4 + 4$

= 8 is an even number

(iii) The product of two even numbers is always an even number.

**Solution:-**

True

For example, take two even numbers 2, 4

Then, product of two even numbers =  $2 \times 4 = 8$  is an even number.

**(iv) The product of three odd numbers is an odd number.**

**Solution:-**

True

For example, take three odd numbers 1, 3 and 5

Then, product of three odd numbers =  $1 \times 3 \times 5 = 15$  is an odd number.

**(v) If an even number is divided by 2, the quotient is always an odd number.**

**Solution:-**

False

For example, take an even numbers 8

Then, divide an even number by 2 we get =  $8/2$

= 4 is an even number.

**(vi) All prime numbers are odd.**

**Solution:-**

False

All the prime numbers except 2 are odd.

**(vii) All even numbers are composite.**

**Solution:-**

False

(viii) Prime numbers do not have any factors.

Solution:-

False

(ix) A natural number is called a composite number if it has at least one more factor other than 1 and the number itself.

Solution:-

True

(x) Two consecutive numbers cannot be both prime.

Solution:-

False

(xi) Two prime numbers are always co-prime numbers.

Solution:-

True

3. Write all the factors of the following natural numbers:

(i) 68

(ii) 27

(iii) 210

Solution:-

(i) 68

The factors of natural number 68 are,

1, 2, 4, 17, 34, 68

(ii) 27

The factors of natural number 27 are,

1, 3, 9, 27

(iii) 210

The factors of natural number 210 are,

1, 2, 3, 5, 6, 7, 10, 14, 15, 21, 30, 35, 42, 70, 105, 210

**4. Write first six multiples of the following natural numbers:**

(i) 3

(ii) 5

(iii) 12

**Solution:-**

(i) 3

The first six multiples of natural number 3 are 3, 6, 9, 12, 15, 18

(ii) 5

The first six multiples of natural number 5 are 5, 10, 15, 20, 25, 30

(iii) 12

The first six multiples of natural number 12 are 12, 24, 36, 48, 60, 72

**5. Match the items in column 1 with the items in column 2:**

**Column 1**

**Column 2**

(i) 15

(a) Multiple of 8

(ii) 36

(b) Factor of 30

(iii) 16

(c) Multiple of 70

(iv) 20

(d) Factor of 50

(v) 25

(e) Multiple of 9

(vi) 210

(f) Factor of 20

**Solution:-**

**Column 1**

**Column 2**

(i) 15

(b) Factor of 30

(ii) 36

(e) Multiple of 9

(iii) 16

(a) Multiple of 8

(iv) 20

(f) Factor of 20

(v) 25

(d) Factor of 50

(vi) 210

(c) Multiple of 70

**6. Find the common factors of :**

**(i) 20 and 28**

**Solution:-**

First we have to find out the factors of 20 and 28,

The factors of 20 are: 1, 2, 4, 5, 10, 20

The factors of 28 are: 1, 2, 4, 7, 14, 28

Now,

The common factors of 20 and 28 are: 1, 2, 4

**(ii) 35 and 50**

**Solution:-**

First we have to find out the factors of 35 and 50,

The factors of 35 are: 1, 5, 7, 35

The factors of 20 are: 1, 2, 4, 5, 10, 20

Then,

The common factors of 35 and 20 are 1, 5

**(iii) 56 and 120**

**Solution:**

First we have to find out the factors of 56 and 120,

The factors of 56 are: 1, 2, 4, 7, 8, 14, 28, 56

The factors of 120 are: 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

Then,

The common factors of 56 and 120 are 1, 2, 4, 8

Question 7.

Find the common factors of:

(i) 4, 8, 12

(ii) 10, 30 and 45

Solution:

(i) The factors of 4 are:

1, 2, 4

The factors of 8 are:

1, 2, 4, 8

The factors of 12 are:

1, 2, 3, 4, 6, 12

The common factors of 4, 8, 12 are 1, 2, 4

(ii) 10, 30 and 45 .

The factor of 10 are:

1, 2, 5, 10

The factor of 30 are:

1, 2, 3, 5, 10, 15, 30

The factor of 45 are:

1, 3, 5, 9, 15, 45

The common factors of 10, 30, 45 are 1, 5



Question 8.

Write all natural numbers less than 100 which are common multiples of 3 and 4.

Solution:

Multiples of 3 are : 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99, 102, 105, 108, .....

Multiples of 4 are : 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, .....

$\therefore$  Common multiples of 3 and 4 are : 12, 24, 36, 48, 60, 72, 84, 96, 108, .....

All the numbers less than 100 which are common multiples of 3 and 4 are 12, 24, 36, 48, 60, 72, 84 and 96.

Question 9.

(i) Write the odd numbers between 36 and 53.

(ii) Write the even numbers between 232 and 251.

Solution:

(i) The odd numbers between 36 and 53 are:

37, 39, 41, 43, 45, 47, 49, 51.

(ii) The even numbers between 232 and 251 are: 234, 236, 238, 240, 242, 244, 246, 248, 250.

Question 10.

(i) Write four consecutive odd numbers succeeding 79.

(ii) Write three consecutive even numbers preceding 124.

Solution:

(i) Four consecutive odd numbers succeeding 79 are : 81, 83, 85, 87.

(ii) Three consecutive even numbers preceding 124 are : 118, 120, 122.

Question 11.

What is greatest prime number between 1 and 15?

Solution:

The greatest prime number between 1 and 15 is 13.

Question 12.

Which of the following numbers are prime?

(i) 29

(ii) 57

(iii) 43

(iv) 61

Solution:

(i) 29

We have,  $29 = 1 \times 29$

$\Rightarrow$  29 has exactly two factors 1 and 29 itself.

$\therefore$  29 is a prime number.

(ii) 57

We have,  $57 = 1 \times 57 = 3 \times 19 = 57$

$\therefore$  Factors of 57 are 1, 3, 19 and 57

$\Rightarrow$  57 has more than two factors

$\therefore$  57 is not a prime.

(iii) 43

We have,  $43 = 1 \times 43$

$\Rightarrow$  43 has exactly two factors 1 and 43 itself.

$\therefore$  43 is a prime number.

(iv) 61

We have,  $61 = 1 \times 61$

$\Rightarrow$  61 has exactly two factors 1 and 61 itself.

$\therefore$  61 is a prime number.

Question 13.

Which of the following pairs of numbers are co-prime?

(i) 12 and 35

(ii) 15 and 37

(iii) 27 and 32

(iv) 17 and 85

(v) 515 and 516

(vi) 215 and 415

Solution:

(i) 12 and 35

The factors of 12 are 1, 2, 3, 4, 6, 12

The factors of 35 are 1, 5, 7, 35

Since, the common factor of 12 and 35 is 1

$\therefore$  They are co-prime.

(ii) 15 and 37

The factors of 15 are 1, 3, 5, 15

The factors of 37 are 1, 37

The common factor of 15 and 37 is 1

$\therefore$  They are co-prime.

(iii) 27 and 32

The factors of 27 are 1, 3, 9, 27

The factors of 32 are 1, 2, 4, 8, 16, 32

Since, the common factor of 27 and 32 is 1 They are co-prime

(iv) 17 and 85

The factors of 17 are 1, 17

The factors of 85 are 1, 5, 17, 85

The common factors of 17 and 85 are 1 and 17

$\therefore$  They are not co-prime because they have more than 1 common factor.

(v) 515 and 516

The factors of 515 are 1, 5, 103, 515

The factors of 516 are 1, 2, 3, 4, 6, 12, 43, 86, 129, 172, 258, 516

Since, the common factor of 515 and 516 are 1 and 5

$\therefore$  So, they are not co-prime.

(vi) 215 and 415

The factors of 215 are 1, 5, 43, 215

The factors of 415 are : 1, 5, 83, 415

Since, the common factor of 215 and 415 are 1 and 5.

$\therefore$  So, they are not co-prime.

Question 14.

Express each of the following numbers as the sum of two odd primes:

(i) 24

(ii) 36

(iii) 84

(iv) 98

Solution:

(i) 24

$$\Rightarrow 24 = 5 + 19$$

(ii) 36

$$\Rightarrow 36 = 7 + 29$$

(iii) 84

$$\Rightarrow 84 = 17 + 67$$

(iv) 98

$$\Rightarrow 98 = 19 + 79$$

Question 15.

Express each of the following numbers as the sum of twin-primes:

(i) 24

(ii) 36

(iii) 84

(iv) 120

Solution:

(i) 24

$$\Rightarrow 24 = 11 + 13$$

(ii) 36

$$\Rightarrow 36 = 17 + 19$$

(iii) 84

$$\Rightarrow 84 = 41 + 43$$

(iv) 120

$$\Rightarrow 120 = 59 + 61$$



Question 16.

Express each of the following numbers as the sum of three odd primes:

(i) 21

(ii) 35

(iii) 49

(iv) 63

Solution:

(i) 21

$$\Rightarrow 21 = 3 + 7 + 11$$

(ii) 35

$$\Rightarrow 35 = 5 + 11 + 19$$

(iii) 49

$$\Rightarrow 49 = 7 + 11 + 31$$

(iv) 63

$$\Rightarrow 63 = 7 + 13 + 43$$