Board – CBSE	Class – 6th	Topic – Playing with Numbers

1. Define:

(i) factor

(ii) multiple

Ans. (i) A factor of a number is an exact divisor of that number.

Example:

1. 5 and 2 are factors of 10 i.e. $5 \times 2 = 10$

2. 4 and 3 are factors of 12 i.e. $4 \times 3 = 12$

3. 4 and 2 are factors of 8 i.e. $4 \times 2 = 8$

4. 2 and 6 are factors of 12 i.e. $2 \times 6 = 12$

(ii) A multiple of a number is a number obtained by multiplying it by a natural number.

Example:

1. 10 is a multiple of 2 i.e. $2 \times 5 = 10$

2. 12 is a multiple of 4 i.e. $4 \times 3 = 12$

3. 8 is a multiple of 2 i.e. $2 \times 4 = 8$

4. 21 is a multiple of 3 i.e. $3 \times 7 = 21$

2. Write the first five multiples of each of the following numbers:

(i) 25

(ii) 35

Ans. (i) 25

It can be written as

$1 \times 25 = 25$

$2 \times 25 = 50$

$3 \times 25 = 75$

$4 \times 25 = 100$

$5 \times 25 = 125$

Therefore, the first five multiples of 25 are 25, 50, 75, 100 and 125.

(ii) 35

It can be written as

$1 \times 35 = 35$

$2 \times 35 = 70$

$3 \times 35 = 105$

$4 \times 35 = 140$

$5 \times 35 = 175$

Therefore, the first five multiples of 35 are 35, 70, 105, 140 and 175.

3. Without actual division show that 11 is a factor of each of the following numbers:

(i) 1111

(ii) 11011

Ans. (i) 1111

Sum of digits at the odd places $= 1 + 1 = 2$

Sum of digits at the even places $= 1 + 1 = 2$

So the difference between the two sums $= 2 - 2 = 0$

Hence, 1111 is divisible by 11 as the difference between the two sums is zero.

(ii) 11011

Sum of digits at the odd places $= 1 + 0 + 1 = 2$

Sum of digits at the even places $= 1 + 1 = 2$

So the difference between the two sums $= 2 - 2 = 0$

Hence, 11011 is divisible by 11 as the difference between the two sums is zero.

4. Find the common factors of:

(i) 15 and 25

(ii) 35 and 50

Ans. (i) 15 and 25

We know that

$1 \times 15 = 15$

$3 \times 5 = 15$

Factors of 15 are 1, 3, 5, and 15.

We know that

$1 \times 25 = 25$

$5 \times 5 = 25$

Factors of 25 are 1, 5, and 25.

Therefore, the common factors are 1 and 5.

(ii) 35 and 50

We know that

$1 \times 35 = 35$

$5 \times 7 = 35$

Factors of 35 are 1, 5, 7, and 35.

We know that

$1 \times 50 = 50$

$2 \times 25 = 50$

$5 \times 10 = 50$

Factors of 50 are 1, 2, 5, 10, 25, and 50.

Therefore, the common factors are 1 and 5.

5. A number is divisible by 24. By what other numbers will that number be divisible?

Ans. It is given that a number is divisible by 24

We know that the factors of 24 are

1, 2, 3, 4, 6, 8, 12 and 24

Therefore, the number is divisible by 1, 2, 3, 4, 6, 8, and 12.

6. Write all prime numbers between:

(i) 10 and 50

(ii) 70 and 90

Ans. (i) The prime numbers between 10 and 50 are

11, 13, 17, 19, 23, 29, 31, 37, 41, 43 and 47.

(ii) The prime numbers between 70 and 90 are

71, 73, 79, 83, and 89.

7. Which of the following pairs are always co-prime?

(i) two prime numbers

(ii) one prime and one composite number

Ans.

(i) Two prime numbers are always co-prime to each other.

For example, the numbers 7 and 11 are co-prime to each other.

(ii) One prime and one composite number are not always co-prime.

For example, the numbers 3 and 21 are not co-prime to each other

8. In which of the following expressions, prime factorization has been done?

(i) $24 = 2 \times 3 \times 4$

(ii) $56 = 1 \times 7 \times 2 \times 2 \times 2$

Ans. Prime factorisation has been done in

(ii) $56 = 1 \times 7 \times 2 \times 2 \times 2$

9. Write the smallest 4-digit number and express it as a product of primes.

Ans. 1000 is the smallest 4-digit number.

We know that

$1000 = 2 \times 500$

$= 2 \times 2 \times 250$

So we get

$1000 = 2 \times 2 \times 2 \times 125$

It can be further expanded as

$1000 = 2 \times 2 \times 2 \times 5 \times 25$

We get

$1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5$

10. Test the divisibility of the following numbers by 3:

(i) 70335

(ii) 607439

Ans. We know that a number is divisible by 3 if the sum of digits is divisible by 3.

(i) 70335

We know that

$7 + 0 + 3 + 3 + 5 = 18$ which is divisible by 3

Therefore, 70335 is divisible by 3.

(ii) 607439

We know that

$6 + 0 + 7 + 4 + 3 + 9 = 29$ which is not divisible by 3

Therefore, 607439 is not divisible by 3.