Worksheet

Factors and Multiples

Question 1: Tick (J') the true statement and cross (X) the false statement. The first is done for you:

- 36 is a multiple of 9. **True**
- 6 is the least non-zero multiple of 6. **True**
- 1 is the multiple of 5. **True**

Tips:

- The first ten multiples of 9 are 9, 18, 27, 36, 45, 54, 63, 72, 81, 90.

- In this question, the number is 6.

  We know that, multiples of 6 are 6, 12, 18, 24, 30, 36, 42, 48, 54 and so on.
  By observing above multiples, it is clear that, 6 is the least non-zero multiple of 6.
  So, the least non-zero multiple of 6 is 6.

- Yes, every whole number is a multiple of 1.

Question 2: Answer the following questions:

- Is 144 a multiple of 16? **(Yes)**
- Is 220 a multiple of 25? (**False)**
- Find the fourth multiple of 15.

- Yes,
  The multiples of 16 are 16, 32, 48, 64, 80, 96, 112, 128, 144, 160 and so on.

- No,
  To create a list of multiples of 25, we first multiply 25 by 1 to get the first
  multiple of 25 which is 25, then we multiply 25 by 2 to get the second multiple of 25 which is 50, then we multiply 25 by 3 to get the third multiple of 25 which is 75, and so on.

- Multiples of 15 are 15, 30, 45, 60, 75, 90, 105, 120, 135 and so on, Fourth multiple of 15 is 60.

Question 3: Write the next four multiples:

- 9, 18, 27, **36, 45, 54, 63.**
- 11, 22, 33, **44, 55, 66, 77.**
- 25, 50, 75, **100, 125, 150, 175.**

Question 4: Fill in the blanks :

- 12 x 8 = 96 means 96 is a multiple of **12** and **8**.
- 15 x 18 = 270 means 270 is a multiple of **15** and **18**.
- 15 x 16 = 240 means **240** is a multiple of 15 and 16.

Question 5: Write down all the prime numbers between 25 and 50.

Answer : The 6 prime numbers between 25 and 50 are: 29, 31, 37, 41, 43 and 47.

Question 6: Encircle the composite numbers : 21, 31, 39, 49, 51, 53, 63, 91, 97.

Answer : A number that is divisible by a number other than 1 and the number itself, is called a composite number. The composite numbers in the above series are 21, 39, 49, 51, 63, 91.

Question 7: Write the smallest number which when added to an even number makes the sum an odd number.

Answer : The smallest number which when added to an even number makes it an odd number is 1. An even number is always divisible by 2.

Question 8: Write the prime factorization of 96.

Answer : The prime factors of 96 thus obtained are written as 96 = 2 × 2 × 2 × 2 × 2 × 3 = 2^5 × 3^1, where 2 and 3 are the prime numbers.

Question 9: Find the H.C.F. of:

- **15 and 35:** To find the HCF of 15 and 35, we will find the prime factorization of the given numbers, i.e. 15 = 3 × 5; 35 = 5 × 7.
  ⇒ Since 5 is the only common prime factor of 15 and 35.
  Hence, HCF (15, 35) = 5.

- **16, 48 and 80:** As visible, 48 and 80 have common prime factors. Hence, the HCF of 48 and 80 is $2 \times 2 \times 2 \times 2 = 16$.

- **30, 75 and 90:** HCF of 30 and 75 is 15. We will now calculate the prime factors of 30 and 75, then find the greatest common factor of the numbers by matching the biggest common factor of 30 and 75.

Question 10: 15 x 8 = 120. Here 15 and 8 are **multiplicants** of 120 and 120 is a **Product** of 15 and 8.

Question 11: The smallest multiple of a number is **number itself.**
The smallest multiple of a number is the **number itself**. The smallest common multiple of two numbers is the smallest number which is completely divisible by both the numbers.

Question 12: Which number has exactly 1 factor **prime number.**

Answer : A number with only two factors is called a **prime number**. A number with more than two factors is called a composite number. The number 1 is neither prime nor composite. It has only one factor, itself.

Question 13: Encircle the prime numbers: 14, 19, 37, 45, 61 , 69, 77, 81, 99.

Answer : 19, 37, 61. These are prime numbers. A prime number is a natural number greater than 1 that is not a product of two smaller natural numbers.

Question 14: Using the tests of divisibility, check whether the following numbers are divisible by:

- **2 : 7,854; 2,065; 18,976; 65, 180; 5,90,007**
  A number is divisible by 2 if the digit at unit place is either 0 or multiple of 2. So a number is divisible by 2 if digit at its units place is 0, 2, 4, 6 or 8. Similarly, the numbers 14, 64, 86, 102, 568, 120 etc. are divisible by 2 because their units place is either 0 or multiple
  7,854; 18,976; 180 are divisible by 2.

- **3 : 7,962; 5,836; 17,094; 26,236; 1,79,622**
  Divisibility rule for 3 states that a number is completely divisible by 3 if the sum of its digits is divisible by 3.

  7,962; 5,836; 17,094; 26,236; 1,79,622
  $7 + 9 + 6 + 2 = 24$ divisible by 3
  $5 + 8 + 3 + 6 = 22$ not divisible by 3
  $1 + 7 + 0 + 9 + 4 = 21$ divisible by 3

$2 + 6 + 2 + 3 + 6 = 19$ not divisible by 3
$1 + 7 + 9 + 6 + 2 + 2 = 2$ divisible by 3

- **4 : 8,534; 7,008; 51,936; 18,547; 2,56,068**
  If the last two digits of a number are divisible by 4, then that number is a multiple of 4 and is divisible by 4 completely.
  7,008; 51,936; 2,56,068 are divisible by 4.

- **5 : 8,325; 64,058; 29,840; 53,263; 8,74,265**
  Numbers, which last with digits, 0 or 5 are always divisible by 5.
  8,325; 29,840; 8,74,265 are divisible by 5.

- **9 : 5,886; 53,883; 58,978; 6,28,527; 5,93,470**
  The rule for divisibility by 9 is similar to divisibility rule for 3. That is, if the sum of digits of the number is divisible by 9, then the number itself is divisible by 9.

  5,886; 53,883; 58,978; 6,28,527; 5,93,470
  $5 + 8 + 8 + 6 = 27$ divisible by 9
  $5 + 3 + 8 + 8 + 3 = 27$ divisible by 9
  $5 + 8 + 9 + 7 + 8 = 37$ not divisible by 9
  $6 + 2 + 8 + 5 + 2 + 7 = 30$ nt divisible by 9
  $5 + 9 + 3 + 4 + 7 + 0 = 28$ not divisible by 9

- **10 : 25,301 ; 63,980; 25,000; 4,32, 705; 1,83,040**

  Divisibility rule for 10 states that any number whose last digit is 0, is divisible by 10.

  63,980; 25,000; 1,83,040 are divisible by 10.

Question 15: Answer the following questions:

- Find the smallest and the largest factor of 120.
- Is 25 a factor of 8100?

- **Factors of 120:** 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120.
  Largest = 120
  Smallest = 1

- 8100 / 324 = 25; therefore, 324 is a factor of 8100 and 25 is also a factor of 8100.