



Marks Obtained: \_\_\_\_\_

Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Multiple Choice Type Questions

Identify the correct answer.

1. Which of the following is an example of a number pattern?  
(a) odd numbers      (b) square numbers      (c) natural numbers      (d) all of these
2. What is the 10th triangular number?  
(a) 45      (b) 55      (c) 66      (d) 78
3. What is the third centred hexagonal number?  
(a) 7      (b) 19      (c) 37      (d) 61
4. What is the sum of the first 25 odd numbers?  
(a) 576      (b) 625      (c) 650      (d) 600
5. Which of the following is a cube number?  
(a) 81      (b) 100      (c) 64      (d) 1250
6. The 4th tetrahedral number is  
(a) 10      (b) 15      (c) 20      (d) 24
7. Which of the following numbers is not a power of 2?  
(a) 128      (b) 256      (c) 384      (d) 512
8. The cube root of the sum of the first 4 centred hexagonal numbers is  
(a) 2      (b) 3      (c) 4      (d) 6

## B. Assertion and Reason Type Questions

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A).
- (c) Assertion (A) is true but Reason (R) is false.
- (d) Assertion (A) is false but Reason (R) is true.

9. **Assertion:** 20 is a tetrahedral number.

**Reason:** The tetrahedral numbers are the sum of the triangular numbers beginning from 1.

10. **Assertion:** 19 is a hexagonal number.

**Reason:** When dots are arranged in such a way that they form a hexagon, then the numbers are termed as hexagonal numbers.

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## A. Fill in the blanks.

1. The missing term in the sequence 1, 10, \_\_\_\_\_, 1000, 10000 is .....
2. .... is the smallest number which follows both square and cubic pattern.
3. If a number is subtracted from its square, the remaining number will always be an .....
4. The Koch snowflake is a ..... curve that starts with an ..... triangle.
5. Virahanka numbers are 1, 2, ....., 5, ....., 13, 21, 34, .....

## B. Label True or False.

1. The 10th term in the sequence 0, 1, 1, 2, 3, 5, 8, ... is 55. ....
2. 8 can be represented as a power of 3. ....
3. The sum of two consecutive triangular numbers makes a square number. ....
4. Hexagonal numbers and centred hexagonal numbers are different. ....
5. Tetrahedral numbers can be represented by the layers of triangles forming a tetrahedron shape ....

## C. Match the following.

Column I	Column II
1. Powers of 3	(a) 1, 5, 12, 22, 35, ...
2. Consecutive odd numbers	(b) 1, 4, 10, 20, ...
3. Hexagonal numbers	(c) 1, 3, 5, 7, 9, 11, ...
4. Pentagonal numbers	(d) 1, 3, 9, 27, 81, 243, ...
5. Tetrahedral numbers	(e) 1, 6, 15, 28, ...

## D. Do as directed.

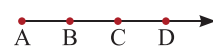
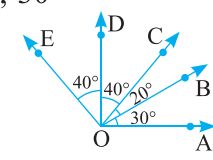
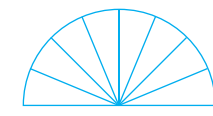
1. A frog wants to reach the top of a well that is 10 steps high. It can climb either 1 step each time or maximum 2 steps at a time. In how many ways can the frog reach the top of the well?
2. How many little squares are there in each shape of the sequence of stacked squares in iterations 1 to 6? Also, name the pattern observed.

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## A. Multiple Choice Type Questions

Identify the correct answer.

- Let A, B, C and D be four distinct points in a plane such that no three of them are collinear. How many lines can be drawn using these points?  
(a) 10 (b) 6 (c) 8 (d) unlimited
  - If A, B and C are three points on a line segment such that  $AB = 6$  cm,  $BC = 3$  cm and  $AC = 9$  cm, which one of them lies between the other two?  
(a) A (b) B (c) C (d) None of these
  - How many distinct rays are there in the given figure?  
(a) 5 (b) 4 (c) 6 (d) unlimited
- 
- Which of the following are two acute angles whose sum is a right angle?  
(a)  $90^\circ, 0^\circ$  (b)  $100^\circ, 10^\circ$  (c)  $100^\circ, 80^\circ$  (d)  $37^\circ, 53^\circ$
  - The measures of the two angles between the hour and minute hands of a clock at 7 o'clock are  
(a)  $210^\circ, 150^\circ$  (b)  $240^\circ, 120^\circ$  (c)  $285^\circ, 75^\circ$  (d)  $330^\circ, 30^\circ$
  - In the given figure, the number of acute angles is  
(a) 4 (b) 6 (c) 7 (d) 8
- 
- Two right angles can be  
(a) Supplementary (b) Linear pair (c) Adjacent (d) All the above
  - A semi-circular piece of a plastic sheet is divided into 8 equal parts as shown. Using this piece which among the following angles can be measured accurately?  
(a)  $11.5^\circ$  (b)  $44.5^\circ$  (c)  $125^\circ$  (d)  $135^\circ$
- 

## B. Assertion and Reason Type Questions

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).
  - Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A).
  - Assertion (A) is true but Reason (R) is false.
  - Assertion (A) is false but Reason (R) is true.
- Assertion:** If the arms of an angle are extended, the angle measure will increase.  
**Reason:** The measure of an angle depends only on the amount of rotation between its two arms, not on their length.
  - Assertion:** Two distinct lines in a plane can either be parallel, intersect at exactly one point or coincide.  
**Reason:** If two lines are not parallel, they must be perpendicular.

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## A. Fill in the blanks.

1. A line extends indefinitely in ..... directions.
2. Two lines that meet at a common point are called ..... lines.
3. A reflex angle is greater than ..... degrees but less than ..... degrees.
4. The sum of a reflex angle and a straight angle is always ..... than a complete angle.
5. An angle formed by two opposite rays is called a ..... angle.

## B. Label True or False.

1. Two parallel lines can pass through a common point. ....
2. Given two distinct points, only one ray can be drawn starting from one point and passing through the given. ....
3. At 10:15, the angle between the hour and minute hands of a wristwatch is smaller than that of a big clock. ....
4. The sum of two acute angles is greater than a reflex angle. ....
5. Two reflex angles can never form a pair of vertically opposite angles. ....

## C. Match the following.

Column I	Column II
1. Sum of an obtuse angle and an acute angle is less than	(a) $360^\circ$
2. Sum of two right angles	(b) $270^\circ$
3. Sum of two acute angles	(c) $180^\circ$
4. Difference between a straight angle and a right angle	(d) Less than $180^\circ$
5. 1 revolution is equal to	(e) $90^\circ$

## D. Do as directed.

1. Rohan's clock stopped working exactly at 3 o'clock. To reset it, he moves the hour hand forward until it reaches 11 o'clock. What fraction of a complete clockwise revolution does the hour hand turn through during this adjustment?
2. Riya is playing a direction challenge with her friends. She follows these two steps:
  - (i) She starts facing South and turns clockwise by  $135^\circ$ .
  - (ii) Then, from her new direction, she turns anti-clockwise by  $225^\circ$ .
  - (a) In which direction is Riya facing at the end?
  - (b) What is the total number of right angles she turns after steps (i).



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## A. Multiple Choice Type Questions

Identify the correct answer.

- The sum of a palindromic number and its reverse is 242. The number is:  
 (a) 121 (b) 131 (c) 202 (d) 101
- Which of the following sequences follows the Collatz Conjecture?  
 (a)  $7 \rightarrow 22 \rightarrow 11 \rightarrow 32 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$   
 (b)  $15 \rightarrow 46 \rightarrow 23 \rightarrow 70 \rightarrow 35 \rightarrow 104 \rightarrow 52 \rightarrow 26 \rightarrow 13 \rightarrow 40 \rightarrow 20 \rightarrow 10 \rightarrow 5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$   
 (c)  $50 \rightarrow 25 \rightarrow 76 \rightarrow 38 \rightarrow 19 \rightarrow 58 \rightarrow 29 \rightarrow 88 \rightarrow 44 \rightarrow 22 \rightarrow 11 \rightarrow 34 \rightarrow 17 \rightarrow 52 \rightarrow 26 \rightarrow 13 \rightarrow 40 \rightarrow 20 \rightarrow 10 \rightarrow 5 \rightarrow 16 \rightarrow 8 \rightarrow 4 \rightarrow 2 \rightarrow 1$   
 (d) All of these
- If a number starts at 22 in the Collatz sequence, how many steps does it take to reach 1?  
 (a) 13 (b) 14 (c) 15 (d) 16
- How many palindromic numbers are there between 100 and 500?  
 (a) 30 (b) 40 (c) 50 (d) 60
- Take a three-digit number, reverse its digits, and subtract the smaller number from the larger one, the result is always:  
 (a) A multiple of 9 (b) A multiple of 99 (c) A multiple of 11 (d) All of the above
- What is the number of steps required for 9875 to reach Kaprekar's constant?  
 (a) 3 (b) 5 (c) 7 (d) 9
- The supercell number in the given series is  

2180	3052	7950	9000	8632	2956
------	------	------	------	------	------

 (a) 3050 (b) 7950 (c) 9000 (d) 2956
- The difference between two 5-digit numbers is a  
 (a) two-digit number (b) three-digit number (c) four-digit number (d) All of the above

## B. Assertion and Reason Type Questions

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).
- Both Assertion (A) and Reason (R) are true but Reason (R) is not a correct explanation of Assertion (A).
- Assertion (A) is true but Reason (R) is false.
- Assertion (A) is false but Reason (R) is true.

- Assertion:** Every four-digit palindromic number is divisible by 11.

**Reason:** A four-digit palindrome can be expressed in the form ABBA.

- Assertion:** 285 rounded off to the nearest tens is 290.

**Reason:** If the digit to the right of the rounding place is 5 or greater, round up by adding 1 to the digit.



## ASSIGNMENT-6



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### A. Fill in the blanks.

1. The maximum possible number of digits in the product of any two three-digit numbers is .....
2. The smallest 6-digit palindromic number formed by using each of the digits 3, 7, and 8 exactly twice is .....
3. A number with more digits is ..... than a number with fewer digits.
4. A cell is called a ..... if its number is smaller than its adjacent cells.

### B. Label True or False.

1. The difference between the largest and the smallest 3-digit palindromic numbers is a palindromic number. ....
2. A cell adjacent to a supercell is always a subcell. ....
3. The difference of two 3-digit numbers is always a 1-digit or 2-digit number. ....
4. The smallest palindromic number made with two different digits is 101. ....
5. The estimated value of 6359 to the nearest hundreds is 6300. ....

### C. Match the following.

Column I	Column II
1. The largest 5-digit number made by using 4, 5, and 9	(a) 45954
2. The smallest palindromic number having digits 4, 5, and 9	(b) 50949
3. Kaprekar's constant for 3-digit numbers	(c) 2915
4. Product of the successor and predecessor of 54	(d) 99954
5. The product of 111 and 459	(e) 495

### D. Do as directed.

1. Consider two numbers that read the same from forward and backward direction (palindromes). Is the sum of any two palindromic numbers always a palindrome? Provide examples to support your viewpoint, and describe any patterns or exceptions you observe.
2. How many round does the number 3427 take to reach the Kaprekar constant?



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## A. Fill in the blanks.

1. The numerical information collected for analysis is called .....
2. A ..... is a way of representing data using symbols or images.
3. In a bar graph, the ..... of each bar represents the corresponding value.
4. A tally mark group of five consists of four ..... lines and one diagonal line crossing them.
5. Data that is collected from published sources like books and newspapers is called ..... data.
6. A ..... bar graph is used to compare two sets of data.

## B. Label True or False.

1. Representation of data using rectangles of uniform width and equal spacing between them is called pictograph. ....
2. Data collected through a questionnaire or interviewer is considered primary data. ....
3. A bar graph can only be drawn with vertical bars, not horizontal bars. ....
4. Tally marks are useful for recording and counting large numbers quickly. ....
5. Primary data collection is generally more time consuming than secondary data collection. ....

## C. Do as directed.

1. The favourite fruit choices of 30 students are as follows:

Apple, Banana, Orange, Apple, Grapes, Banana, Mango, Apple, Orange, Banana, Mango, Grapes, Apple, Orange, Mango, Banana, Apple, Mango, Grapes, Banana, Orange, Mango, Apple, Grapes, Apple, Orange, Mango, Apple, Banana, Grapes.

(a) Prepare a table to organise the above collected data using tally marks.

(b) Which fruit is the most preferred among the students?

2. The number of books read by the students in two different classes over six months is given below:

Month	Class 6	Class 7
January	15	18
February	20	22
March	18	25
April	25	28
May	22	24
June	30	27

(a) Draw a double bar graph to represent the given data.

(b) In which month did class 6 read more books than class 7?

(c) Which class read the least number of books?



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## A. Multiple Choice Type Questions

Identify the correct answer.

1. The number of distinct prime factors of the smallest 4-digit number is  
(a) 2 (b) 3 (c) 4 (d) 5
2. The largest number which always divides the product of any two consecutive even numbers is  
(a) 4 (b) 8 (c) 12 (d) 16
3. Which of the following pairs is co-prime?  
(a) 14 and 21 (b) 15 and 20 (c) 12 and 25 (d) 18 and 27
4. What is the largest 3-digit prime number?  
(a) 997 (b) 991 (c) 993 (d) 995
5. If the LCM of two numbers is 180, which of the following cannot be their HCF?  
(a) 45 (b) 60 (c) 75 (d) 90
6. A number divisible by both 3 and 8 must be divisible by  
(a) 14 (b) 24 (c) 48 (d) 96
7. What is the sum of the number of primes between 20 to 30 and 40 to 50?  
(a) 5 (b) 6 (c) 7 (d) 8
8. The largest number that always divides the sum of any three consecutive even numbers is:  
(a) 2 (b) 3 (c) 6 (d) 12

## B. Assertion and Reason Type Questions

In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true but Reason (R) is false.
- (d) Assertion (A) is false but Reason (R) is true.

9. **Assertion:** Two consecutive odd numbers are always co-prime.

**Reason:** The HCF of two consecutive odd numbers is 1.

10. **Assertion:** All primes greater than 2 are odd.

**Reason:** There are infinitely many primes.

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## A. Fill in the blanks.

- Two prime numbers that differ by 2 are called ..... primes.
- A number for which the sum of its proper factors is greater than the number itself is called an ..... number.
- A number is divisible by 9 if the sum of its digits is a multiple of .....
- The number 1 is neither prime nor .....
- A number is divisible by 4 if the number formed by its last two digits is divisible by .....
- A number is divisible by 6 if it is divisible by both ..... and .....

## B. Label True or False.

- The HCF of an even number and an odd number is always an odd number. ....
- The square of a prime number is always a prime number. ....
- The sum of two prime numbers can be a prime number. ....
- The sum of the first 5 prime numbers is an odd number. ....
- 469 is a perfect number. ....

## C. Match the following.

Column I	Column II
1. The smallest odd prime number	(a) 7
2. The only even prime number	(b) 6
3. A perfect number	(c) 2
4. A factor of 485	(d) 3
5. A divisor of 1253	(e) 97

## D. Do as directed.

- Ravi has 24 chocolates and 36 toffees. He wants to pack them into identical gift boxes such that each box contains an equal number of chocolates and an equal number of toffees without any leftovers. What is the greatest number of gift boxes he can make, and how many chocolates and toffees will be in each box?

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## Multiple Choice Type Questions

Identify the correct answer.

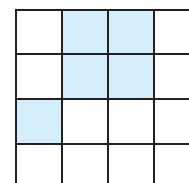
1. If each square is 1 unit long, find the perimeter of the shaded region.

(a) 12 units

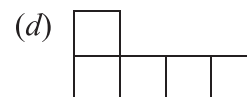
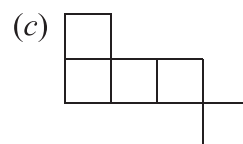
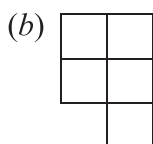
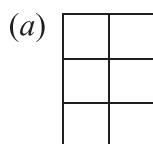
(b) 5 units

(c) 6 units

(d) 9 units



2. The following figures are formed using 5 unit squares. Which figure has the largest perimeter?



3. A square and a rectangle have the same perimeter of 36 cm. The rectangle has a length of 10 cm. What is the area of the square?

(a) 81 cm<sup>2</sup>

(b) 72 cm<sup>2</sup>

(c) 64 cm<sup>2</sup>

(d) 60 cm<sup>2</sup>

4. A square is divided into four identical smaller squares. What happens to the total perimeter?

(a) It becomes half.

(b) It doubles.

(c) It remains the same.

(d) It quadruples

5. If the length of a rectangle is doubled and its width is halved, what happens to its area and perimeter?

(a) Area remains the same; perimeter may change.

(b) Area doubles; perimeter remains the same.

(c) Area remains the same; perimeter doubles.

(d) Area doubles; perimeter doubles.

6. Which pair of shapes has the same area but different perimeters?

(a) Square (side 6 cm) and Rectangle (9 cm × 4 cm)

(b) Square (side 5 cm) and Rectangle (10 cm × 2.5 cm)

(c) Square (side 8 cm) and Rectangle (16 cm × 4 cm)

(d) All of these.

7. A farmer fences a rectangular plot with a perimeter of 60 m. If the length is increased by 2 m and the width decreased by 2 m, the new perimeter will:

(a) Increase by 4 m

(b) Decrease by 4 m

(c) Remain the same

(d) Decrease by 8 m

8. Which shape has the largest area for a fixed perimeter of 40 cm?

(a) Rectangle 15 cm × 5 cm

(b) Rectangle 12 cm × 8 cm

(c) Square with side 10 cm

(d) All have the same area

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## A. Fill in the blanks

1. The area of a square with a perimeter of 36 m is \_\_\_\_\_ sq m.
2. If the length of a rectangle is tripled and the width is halved, the new area will be \_\_\_\_\_ times the original area.
3. A square and a rectangle have the same area. The square has side 8 cm. If the rectangle has length 16 cm, its width is \_\_\_\_\_ cm.
4. The maximum possible area for a rectangle with a perimeter of 28 cm is \_\_\_\_\_  $\text{cm}^2$ .
5. Two rectangles have the same perimeter. One has dimensions 6 cm  $\times$  4 cm, the other 7 cm  $\times$  3 cm. The area of the first is \_\_\_\_\_  $\text{cm}^2$  and the second is \_\_\_\_\_  $\text{cm}^2$ .

## B. State true or false

1. If two rectangles have the same perimeter, they must have the same area. \_\_\_\_\_
2. If two squares have the same perimeter, they must have the same area. \_\_\_\_\_
3. Changing the shape of a figure by changing its perimeter will always change its area. \_\_\_\_\_
4. If the area of a square is 289  $\text{cm}^2$ , its perimeter is 68 cm. \_\_\_\_\_
5. If the perimeter of a rectangle is 24 cm, its area can be 35  $\text{cm}^2$ . \_\_\_\_\_

## C. Match the following

Column I	Column II
1. Area of a rectangle	(a) $4 \times \text{length of a side}$
2. Perimeter of a square	(b) $\text{side} \times \text{side}$
3. Area of a square	(c) $3 \times \text{length of a side}$
4. Perimeter of a rectangle	(d) $\text{length} \times \text{breadth}$
5. Perimeter of an equilateral triangle	(e) $2(\text{length} + \text{breadth})$

## D. Do as directed

1. A rectangular swimming pool measures 30 m in length and 20 m in width. A pathway of uniform width is constructed all around the pool. If the area of just the pathway is 216  $\text{m}^2$ , what is the width of the pathway?
2. A wall measures 3 m in height and 5 m in width. Marble tiles, each measuring 30 cm  $\times$  25 cm, are used to cover the wall completely. How many tiles are required to cover the wall?



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## A. Multiple Choice Type Questions

Identify the correct answer.

1. Which of the following fractions is not in the lowest form?

- (a)  $\frac{23}{39}$  (b)  $\frac{21}{39}$  (c)  $\frac{5}{7}$  (d)  $\frac{34}{53}$

2. The fraction which is not equal to  $\frac{4}{7}$  is

- (a)  $\frac{28}{49}$  (b)  $\frac{36}{63}$  (c)  $\frac{56}{98}$  (d)  $\frac{48}{91}$

3. If  $\frac{m}{14} = \frac{48}{56}$ , then the value of m is

- (a) 2 (b) 12 (c) 6 (d) 8

4. The two consecutive whole numbers between which the fraction  $\frac{3}{4}$  lies are

- (a) 1 and 2 (b) 2 and 3 (c) 3 and 4 (d) 4 and 5

5. Which of the following fractions is the smallest?

- (a)  $\frac{3}{5}$  (b)  $\frac{5}{7}$  (c)  $\frac{7}{9}$  (d)  $\frac{9}{11}$

6. When  $\frac{8}{13}$  is written with the numerator as 32, its denominator is

- (a) 26 (b) 39 (c) 52 (d) 45

## B. Assertion and Reason Type Questions.

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).  
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 (c) Assertion (A) is true but Reason (R) is false.  
 (d) Assertion (A) is false but Reason (R) is true.

1. **Assertion (A):**  $\frac{1}{34}$  is a unit fraction.

**Reason (R):** A fraction with numerator 1 is called a unit fraction.

2. **Assertion (A):**  $\frac{13}{15}$  and  $\frac{11}{15}$  are like fractions.

**Reason (R):** Fractions having the same numerators are called like fractions.

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## A. Fill in the blanks

- The fraction  $\frac{3}{5}$  is called a \_\_\_\_\_ fraction because its numerator is smaller than the denominator.
- The fraction  $\frac{4}{9}$  is in its \_\_\_\_\_ form because there are no common factors between the numerator and the denominator.
- A number representing a \_\_\_\_\_ of a whole is called a fraction.
- The fraction  $\frac{30}{75}$  in simplest form is \_\_\_\_\_.
- A fraction is in its simplest or standard form if the HCF of the numerator and the denominator is \_\_\_\_\_.

## B. State true or false

- The sum of two improper fractions is always a fraction. \_\_\_\_\_
- A fraction can represent a number greater than 1. \_\_\_\_\_
- All improper fractions are greater than 1. \_\_\_\_\_
- $\frac{2}{3}$  and  $\frac{4}{6}$  are equivalent fractions. \_\_\_\_\_
- If two fractions have the same denominator, the one with the larger numerator is smaller. \_\_\_\_\_

## C. Match the following

Column I	Column II
1. $\frac{2}{6} + \frac{2}{3}$	(a) $\frac{4}{5}$
2. $\frac{7}{12} - \frac{5}{12}$	(b) $\frac{1}{6}$
3. Equivalent fraction of $\frac{5}{6}$	(c) 1
4. $\frac{36}{45}$ in standard form	(d) $\frac{10}{12}$

## D. Do as directed

- At a Diwali party, Ananya divided one whole fruit cake equally among 8 guests. What fraction of the cake did each guest receive?
- Arjun rode his scooter  $5\frac{2}{3}$  km in the morning to visit his friend and  $5\frac{2}{3}$  km in the evening on his way back home. What is the total distance he travelled that day?



Marks Obtained: \_\_\_\_\_

Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Multiple Choice Type Questions

Identify the correct answer.

- Which tool is used to measure angles accurately?  
(a) Divider (b) Compass (c) Protractor (d) Ruler
- The diameter of a circle is 14 cm. What is its radius?  
(a) 7 cm (b) 14 cm (c) 3.5 cm (d) 28 cm
- Two circles touch internally. If their radii are 5 cm and 3 cm, what is the distance between their centres?  
(a) 8 cm (b) 2 cm (c) 15 cm (d) 4 cm
- A line segment passing through the centre of a circle and connecting two points on it is called a:  
(a) Radius (b) Chord (c) Diameter (d) Arc
- To verify a square, you must check that all sides are equal and it has:  
(a) Two right angles (b) Three right angles (c) Four right angles (d) No right angles
- What are the common properties of both set-squares in a geometry box?  
(A) They have a right angle and are triangular in shape.  
(B) They have an acute angle and are rectangular in shape.  
(C) They have an obtuse angle and are square in shape.  
(D) They have a straight angle and are parallelogram in shape.

## B. Fill in the blanks

- The instrument in the geometry box having the shape of a triangle is called a \_\_\_\_\_.  
(set square/divider)
- With a ruler and compasses, we can bisect any given \_\_\_\_\_.  
(line segment/shape)
- Using only the two set-squares of the geometry box, an angle of \_\_\_\_\_ can be drawn. ( $75^\circ/40^\circ$ )
- It is possible to draw \_\_\_\_\_ bisector(s) of a given angle.  
(only one/two)

Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Multiple Choice Type Questions

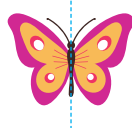
Identify the correct answer.

1. In which of the following figures is the dotted line a line of symmetry?

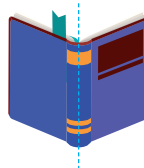
(a)



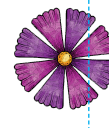
(b)



(c)



(d)



2. Which shape can tessellate a plane without gaps and has rotational symmetry of order 4?

(a) Equilateral Triangle

(b) Rectangle

(c) Square

(d) None of these

3. The number of lines of symmetry in a semicircle is

(a) 0

(b) 1

(c) 4

(d) None of these

4. Which of the following letters does not have the vertical line of symmetry?

(a) A

(b) T

(c) F

(d) U

5. If a figure has rotational symmetry of order 6, what is the smallest angle of rotation?

(a)  $30^\circ$

(b)  $45^\circ$

(c)  $60^\circ$

(d)  $90^\circ$

6. Select the letter that possesses both horizontal and vertical lines of symmetry.

(a) E

(b) I

(c) M

(d) N

7. Which shape has four lines of symmetry but no rotational symmetry?

(a) Square

(b) Regular Octagon

(c) Isosceles Triangle

(d) None of these

8. In a rectangle and a rhombus, the number of lines of symmetry is:

(a) Equal

(b) Depends on the side lengths

(c) Unequal

(d) Always greater for a rhombus

## B. Assertion and Reason Type Questions.

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

1. **Assertion (A):** A square has more lines of symmetry than a rectangle.

**Reason (R):** A square has four lines of symmetry, whereas a rectangle has only two.

2. **Assertion (A):** A circle has an infinite number of lines of symmetry.

**Reason (R):** Any line passing through two points on the circumference of a circle is a line of symmetry for the circle.

Marks Obtained: \_\_\_\_\_

Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Fill in the blanks

1. A shape with no lines of symmetry is called \_\_\_\_\_.
2. The type of symmetry where a shape maps onto itself when reflected over a line is called \_\_\_\_\_ symmetry.
3. A shape has rotational symmetry of order 4. The smallest angle of rotation is \_\_\_\_\_ degrees.
4. The letter 'M' has a \_\_\_\_\_ line of symmetry.
5. The angle through which the object looks exactly the same is called \_\_\_\_\_.

## B. State true or false

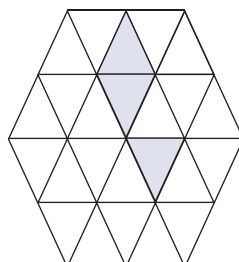
1. A tessellation can be created using only regular pentagons. \_\_\_\_\_
2. All triangles have at least one line of symmetry. \_\_\_\_\_
3. A shape with rotational symmetry of order 3 will look the same after every  $120^\circ$  rotation. \_\_\_\_\_
4. The number of lines of symmetry in a circle is double the number of lines of symmetry in a semicircle. \_\_\_\_\_
5. Reflection symmetry is the same as rotational symmetry. \_\_\_\_\_

## C. Match the following

Column I Shape	Column II No. of lines of symmetry
1. Parallelogram	(a) 6
2. Rhombus	(b) 3
3. Regular heptagon	(c) 0
4. Equilateral triangle	(d) 2
5. Regular hexagon	(e) 7

## D. Do as directed

1. Shade three more triangles to make a pattern with rotational symmetry of order 3.



Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Multiple Choice Type Questions

Identify the correct answer.

- On a number line, which integer is farthest from zero?  
 (a)  $-13$  (b)  $-7$  (c)  $12$  (d)  $10$
- Which of the following is true?  
 (a)  $-5 > -3$  (b)  $0 < -1$  (c)  $-8 < -6$  (d)  $-1 = 1$
- The absolute value of  $(|-9 + 4|)$  is:  
 (a)  $-5$  (b)  $5$  (c)  $13$  (d)  $-13$
- A diver is at  $-25$  meters. If she ascends  $10$  meters, her new position is:  
 (a)  $-35$  m (b)  $-15$  m (c)  $15$  m (d)  $35$  m
- Which integer is  $12$  units away from  $-4$  on the number line?  
 (a)  $8$  (b)  $-16$  (c)  $16$  (d) Both (a) and (b)
- The temperature rose from  $-5^{\circ}\text{C}$  to  $7^{\circ}\text{C}$ . What is the temperature change?  
 (a)  $2^{\circ}\text{C}$  (b)  $12^{\circ}\text{C}$  (c)  $-12^{\circ}\text{C}$  (d)  $7^{\circ}\text{C}$
- If  $|A| = 15$ , then  $A$  could be:  
 (a)  $15$  only (b)  $-15$  only (c)  $0$  (d) Both (a) and (b)
- Mount Everest is  $8,849$  m above sea level and the Dead Sea is  $430$  m below sea level. What is the difference between the two elevations?  
 (a)  $8,419$  m (b)  $9,279$  m (c)  $-8,419$  m (d)  $-9,279$  m

## B. Assertion and Reason Type Questions.

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

- Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- Assertion (A) is true but Reason (R) is false.
- Assertion (A) is false but Reason (R) is true.

- Assertion (A):** The sum of two negative integers is always a negative integer.

**Reason (R):** When a negative integer is added to a positive integer, the result is always negative.

- Assertion (A):** The predecessor of zero is an integer but not a whole number.

**Reason (R):** Every whole number is also an integer.

Student's Name: \_\_\_\_\_ Section: \_\_\_\_\_

Roll Number: \_\_\_\_\_ Date: \_\_\_\_\_

## A. Fill in the blanks

- The sum of  $-15$ ,  $20$ , and  $-(-5)$  is \_\_\_\_\_.
- The absolute value of the sum of  $-8$  and  $5$  is \_\_\_\_\_.
- The temperature difference between  $-12^{\circ}\text{F}$  and  $5^{\circ}\text{F}$  is \_\_\_\_\_  $^{\circ}\text{F}$ .
- A debt of ₹200 represented as an integer is \_\_\_\_\_.
- If  $|P| = 0$ , then  $P =$  \_\_\_\_\_.

## B. State true or false

- Zero is a positive integer. \_\_\_\_\_
- The sum of a fraction and an integer is an integer. \_\_\_\_\_
- Subtracting a negative integer is the same as adding its absolute value. \_\_\_\_\_
- All integers are whole numbers. \_\_\_\_\_
- $-10, -3, -2, 0, 3$  are in ascending order. \_\_\_\_\_

## C. Match the following

Column I	Column II
1. $ 3  -  -5  +  -7 + 2 $	(a) 8
2. $-3 - (-11)$	(b) 3
3. $-14 + 19$	(c) 9
4. $0 - (-9)$	(d) $-3$
5. $-1 + 2 - 3 + 4 - 5$	(e) 5

## D. Do as directed

- The temperature on a mountain peak is  $-48^{\circ}\text{C}$ , while the temperature in a valley below is  $-15^{\circ}\text{C}$ . If the temperature in the valley rises by  $12^{\circ}\text{C}$ , how much colder will the mountain peak be compared to the valley?
- In a math test, 2 marks are awarded for each correct answer and 1 mark is deducted for each incorrect answer. The test consists of 40 questions. A student answered some of the questions while leaving others unanswered. The number of correct answers is twice the number of incorrect answers, and the student's total score is 30 marks.

How many questions did the student answer correctly, incorrectly, and leave unanswered?