

# S. D. PUBLIC SCHOOL, PITAMPURA, DELHI

## HOLIDAYS' HOMEWORK 2026-27

### SUBJECT – MATHEMATICS

#### CLASS - VI

#### I) PROJECT

Do this project in a scrap file.

##### **Task 1: Geometry in Architecture**

- Students identify geometric shapes found in the **Lotus Temple (Delhi)** and the **Pagodas/Monasteries (Sikkim)**.
- **Task:** List at least 5 shapes found (Symmetry, Triangles, Hexagons, Circles) and draw them.

**Note to Students:** Use a colorful border for your workt inspired by **Sikkimese Thangka paintings** to make it truly "Art-Integrated."

#### II) MODEL

Roll no- 1 to 12 – Make a model explaining the different parts of a circle. You can refer the given link. [https://www.instagram.com/reel/DT6\\_lydjK9V/?igsh=OGg1aXk4dDVtOXM3](https://www.instagram.com/reel/DT6_lydjK9V/?igsh=OGg1aXk4dDVtOXM3)

Roll no. 13 to 24- Make a model explaining fractions, decimals and percentage. . You can refer the given link.

<https://www.instagram.com/reel/DUrz85OjPMR/?igsh=MWZsbDVvcm15NjQxYQ==>

Roll no. 25 to 40- Make a model explaining types of angles. You can refer the given link.

<https://www.youtube.com/watch?v=WZfkrzXBrqE>

### **III) ASSIGNMENT**

#### **Instructions**

**Take print of the given assignments and submit in a stick file.**

#### **Unit 1 – Patterns in numbers**

#### **Multiple choice questions**

**(i) What sequence do we get when we start adding up odd numbers?**

- (a) Cubes
- (b) Squares
- (c) Triangular numbers
- (d) Even numbers

**(ii) The sequence 1, 7, 19, 37,.... is called as**

- (a) cubes
- (b) squares
- (c) triangular numbers
- (d) hexagonal numbers

**(iii) The terms in the number sequence 38, 34, 30, 26, are generated by:**

- (a) adding 4 to the next term
- (b) multiplying by 4 to get the next term
- (c) subtracting 4 to get the next term
- (d) dividing by 4 to get the next term

**(iv) Which number is missing in the pattern 120, 115, 110, \_, 100, 95?**

- (a) 105
- (b) 115
- (c) 90
- (d) 95

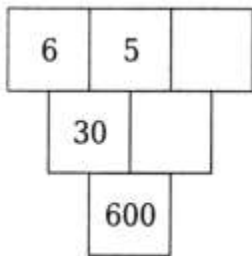
**(v) The missing term in the sequence 1, 3, 6, ?, 15 is**

- (a) 25
- (b) 9
- (c) 10
- (d) 8

(vi) Start with 21 and subtract 4 from each term to get the next term. What are the first 4 terms?

- (a) 17, 13, 9, 5
- (b) 21, 17, 13, 9
- (c) 21, 16, 11, 6
- (d) 5, 9, 13, 17

(vii) The number in each box below is the product of the numbers in the two boxes that touch it in the row above. For example,  $30 = 6 \times 5$ . What is the missing number in the top row?



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

### Assertions & Reasoning

Study the Assertion (A) and Reason (R) statements given below and choose the correct alternative.

- (a) Both A and R are true and R is the correct explanation of A.
  - (b) Both A and R are true but R is not the correct explanation of A.
  - (c) A is true but R is false.
  - (d) A is false but R is true.
- (i) Assertion (A) The sequence 1, 3, 6, 10,... is called Triangular numbers.**

**Reason (R) The sequence of 1, 2, 3, 4, 5, ... is called counting numbers.**

Ans.

**(ii) Assertion (A) The next term in the sequence 7, 12, 17, 22,... is 27.**

**Reason (R) The sequence is obtained by adding 5 in the previous term to get the next term.**

Ans.

**(iii) Assertion (A) The sequence of shapes triangle, square, pentagon, hexagon, is an example of a shape pattern.**

**Reason (R) The number of sides of each shape increases by one with each term.**

Ans.

**(iv) Assertion (A) The sequence 1 3, 5, 7, 9,... is an odd number sequence.**

**Reason (R) The sequence 2, 4, 6, 8,... is an even number sequence.**

Ans.

### **Fill in the blanks**

(i) The branch of Mathematics that studies patterns in whole numbers is called

\_\_\_\_\_.

(ii) The sequence 1, 8, 27, 64,... represents the \_\_\_\_\_ of numbers.

(iii) The terms in the number sequence 3, 6, 12, 24, ... are generated by

\_\_\_\_\_.

(iv) \_\_\_\_\_ numbers can be represented as dots forming a perfect square.

(v) The pattern 2, 4, 6, 8, 10,... is a sequence of \_\_\_\_\_ numbers.

(vi) A \_\_\_\_\_ polygon is a shape with all sides and angles equal.

(vii) The sequence 1, 2, 3, 5, 8, 13, 21,... is called \_\_\_\_\_ sequence.

**State whether the following statements are True or False.**

- (i) A regular polygon has equal sides but different angles.
- (ii) The number 36 can be both a square and a triangular number.
- (iii) The sequence 1, 4, 9, 16, 25, ... is an example of cubes.
- (iv) A shape sequence starting with a square and adding one side each time would form polygons with increasing number of sides.
- (v) The next term in the sequence 0, 1, 1, 2, 3, 5, ... is 8.

**Match the following**

Column A	Column B
(i) 1, 3, 6, 10, 15, ...	(a) Squares
(ii) 1, 2, 3, 4, 5, ...	(b) Triangular numbers
(iii) 1, 4, 9, 16, 25, ...	(c) Cubes
(iv) 1, 7, 19, 37, ...	(d) Counting numbers
(v) 1, 8, 27, 64, 125, ...	(e) Hexagonal numbers

**Complete the following table with the missing numbers and figure out the pattern rule for each.**

Sequence	Pattern rule
(i) 17, 20, 23, 26, 29, 32, 35, 38	Adding 3
(ii) 25, 30, _, 40, 45, _, _, _	
(iii) 100, 90, _, _, 60, 50, _	
(iv) 8, _, 24, _, 40, _, _, 64	

**Very Short Answer Type Questions**

(i) What is the pattern rule followed by the sequence 88, 77, 66, 55, 44, 33, ...?

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(ii) What should be the next number in this pattern, 8, 10, 13, 17, 22, 28, ...?

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(iii) Which number is missing in this pattern 41, 45, 49, ..., 57, 61, 65?

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(iv) How many counters would come next?



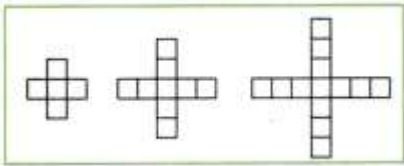

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### Short Answer Type Questions

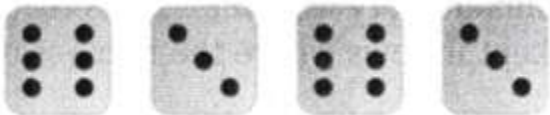
(i) Complete the pattern and find the pattern rule: 5, 9, 13, \_\_, \_\_

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(ii) How many cubes would be in the next shape?



(iii) Complete the dice pattern.



(iv) Alice used the rule ‘double the number’ to create the following pattern.

3, 6, 12, 24, \_\_\_\_\_, \_\_\_\_\_ Find the next two numbers.

### Long Answer Type Questions

(i) If the first tower has 3 blocks, the second tower has 6 blocks and the third tower has 9 blocks, then how many blocks will the 8th tower have?

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(ii) Sam wanted to keep track of the points he earned in his new racing video game. He created a function table to track his points and his laps around the track. How many laps did Sam make around the track if he earned 9 points?

<b>Input</b> (Laps around track)	12	14	16	?
<b>Output</b> (Points)	6	7	8	9



C. A group of friends is counting the number of stars, they see each night. On the first night, they see 5 stars. Each subsequent night, they see 2 more stars than the previous night.

(i) How many stars will they see on the 4th night?

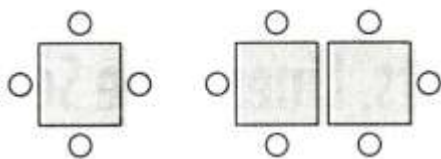
- (a) 11                      (b) 14                      (c) 15                      (d) 16

(ii) If this pattern continues, how many stars will they see on the 10th night?

- (a) 20                      (b) 21                      (c) 24                      (d) 23

**Activity**

Mr. Jose is a professional table organiser. For today’s event, he brought square tables. A single square table can seat 4 people, one at each side, as in the first picture below (each circle is a person). If Mr. Jose joins 2 tables along a side, as in the second picture below, he can seat 6 people.



How many people can Mr. Jose seat with even more tables? Draw and extend the pattern on a paper and complete the chart below.

	Number of tables	Number of persons
(i)	1	_____ 2 _____
(ii)	2	_____ 6 _____
(iii)	3	_____ _____
(iv)	4	_____ _____
(v)	5	_____ _____
(vi)	6	_____ _____
(vii)	7	_____ _____
(viii)	8	_____ _____

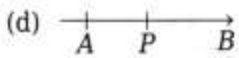
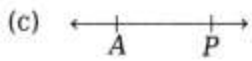
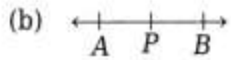
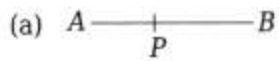
## Unit 2 – Lines and angles

### Multiple choice questions

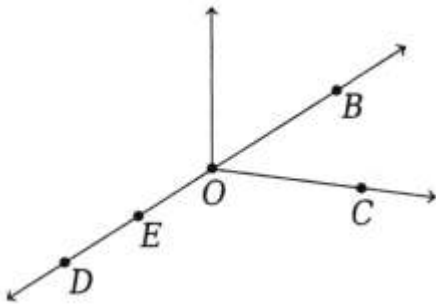
1. A contains a countless number of points.

- (a) point                      (b) line segment                      (c) ray                      (d) line

2. Which figure represents : point P lies on line segment AB.



3. How many points does the given figure has?



- (a) 5                      (b) 4                      (c) 3                      (d) 6

4. A line segment has

- (a) definite length but no end points  
(b) infinite length but no end point  
(c) definite length and have end points  
(d) None of the above

5. How many lines pass through two given points?

- (a) One                      (b) Two                      (c) Many                      (d) None

6. If two lines are perpendicular to each other, then angle between them at the point of contact is

- (a)  $80^\circ$                       (b)  $90^\circ$                       (c)  $85^\circ$                       (d)  $100^\circ$

7. One of the acute angle of a right triangle is  $75^\circ$ . Find the other acute angle,  
(a)  $25^\circ$                       (b)  $15^\circ$                       (c)  $35^\circ$                       (d)  $45^\circ$

8. If the sum of two angles is greater than  $180^\circ$ , then which of the following is not possible for the two angles?

- (a) One obtuse angle and one acute angle
- (b) One reflex angle and one acute angle
- (c) Two obtuse angles
- (d) Two right angles

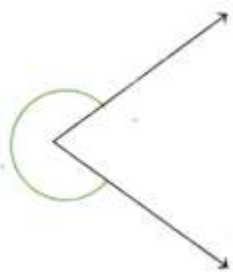
9. If the sum of two angles is equal to an obtuse angle, then which of the following is not possible?

- (a) One obtuse angle and one acute angle
- (b) One right angle and one acute angle
- (c) Two acute angles
- (d) Two right angles

10. Which of the following angles will form a straight angle?

- (a)  $90^\circ, 90^\circ$                       (b)  $45^\circ, 45^\circ$                       (c)  $45^\circ, 60^\circ$                       (d)  $55^\circ, 75^\circ$

11. What is the name of angle in the given figure?



- (a) Right                      (b) Acute                      (c) Reflex                      (d) Obtuse

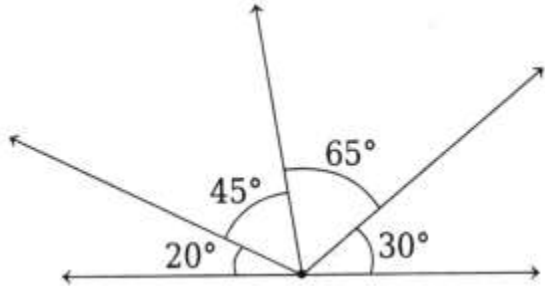
12. A line segment AB is denoted as

- (a)  $\overleftrightarrow{AB}$                       (b)  $\overline{AB}$                       (c)  $\overline{AB}$                       (d) Both (a) and (b)

(b) If the length of a line segment  $AB = 3$  cm, then  $2AB$  will be

- (a) 8 cm                      (b) 6 cm                      (c) 4 cm                      (d) 9 cm

13. In the figure given below, the number of obtuse angles is



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

14. What will be the angle at 3 o'clock?

- (a)  $90^\circ$                       (b)  $45^\circ$                       (c)  $30^\circ$                       (d)  $60^\circ$

15. One full rotation of angle is equal to

- (a)  $180^\circ$                       (b)  $360^\circ$                       (c)  $90^\circ$                       (d)  $270^\circ$

### **Assertion & Reasoning**

Study the Assertion (A) and Reason (R) statements given below and choose the correct alternative.

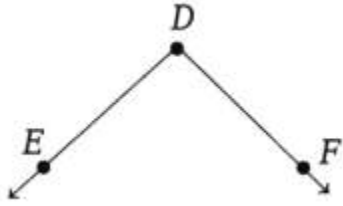
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

**(i) Assertion (A) A line contains a countless number of points.**

**Reason (R) Line extends indefinitely in both the directions.**

Ans.

**(ii) Assertion (A) DE and DF are two rays having initial point D.**



**Reason (R) A ray is a portion of a line. It starts at one point (called starting point) and goes endlessly in a direction.**

Ans.

**(iii) Assertion (A) Line segments have two end points.**

**Reason (R) Line segments have indefinite length.**

Ans.

**(iv) Assertion (A) If the angle formed by meeting of two rays goes beyond a right angle, it is obtuse.**

**Reason (R) An obtuse angle has a measurement greater than  $90^\circ$  but less than  $180^\circ$**

Ans.

### **Fill in the blanks**

1. A geometrical figure which determines a location but has no length, breadth and thickness is called a \_\_\_\_\_.
2. A \_\_\_\_\_ is obtained when a segment is extended on both sides indefinitely.
3. The shortest distance between two points with a fixed length is a \_\_\_\_\_.
4. From a given point, \_\_\_\_\_ rays can be drawn.
5. A \_\_\_\_\_ is a portion of a line starting at a point and extending in one direction indefinitely.
6. \_\_\_\_\_ lines can be drawn from one point.
7. A line has \_\_\_\_\_ length.
8. An angle is made up of two \_\_\_\_\_ starting from a common point.
9. The two rays forming the angle are called \_\_\_\_\_ of the angle.

10. The common starting point of the angle is called the \_\_\_\_\_ of the angle.
11. Degree measures of angles can be measured using a \_\_\_\_\_.
12. An angle greater than  $180^\circ$  and less than a complete angle is called \_\_\_\_\_.
13. Two lines that meet at right angles are called \_\_\_\_\_ lines.

**State whether the following statements are True or False**

1. A line segment AB is symbolically written as AB.
2. A point is a dimensionless geometrical figure.
3. A line segment is determined by two points in a plane.
4. A line has no end points.
5. A ray OP is symbolically written as  $\overrightarrow{OP}$ .
6. A ray determines a precise location.
7. Two angles can have exactly five points in common.
8. Reflex angles are greater than straight angles.
9. If  $m\angle A = 73^\circ$  and  $m\angle B = 37^\circ$ , then  $m\angle A > m\angle B$ .

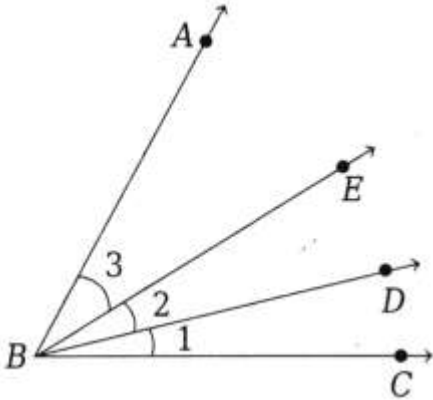
**Match the following**

Q1. Match the following properties with their correct geometrical figures.

Column A	Column B
(i) Indefinite length in both the directions	(a) Ray
(ii) Has no size but shows position	(b) Line
(iii) Countless collection of points which is a part of line with two end points	(c) Point
(iv) Indefinite length in one direction	(d) Line segment

### Complete the following table

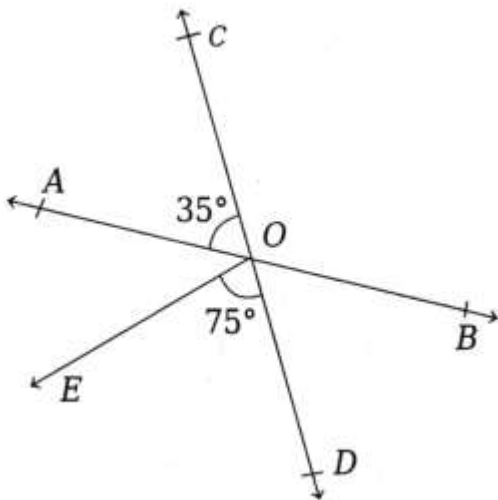
Q1. Complete the following table by naming the angles in the given figure.



- (i)  $\angle 1 = \angle CBD$
- (ii)  $\angle 2$  \_\_\_\_\_
- (hi)  $\angle 1 + \angle 2$  \_\_\_\_\_
- (iv)  $\angle 2 + \angle 3$  \_\_\_\_\_
- (y)  $\angle 1 + \angle 2 + \angle 3$  \_\_\_\_\_

### Case-based questions

Q1. A math's teacher was teaching students about intersecting lines. Suppose AB and CD are two lines, which meet at point O. In this point O, she draws a line OE and all these lines were making different angles with each other.





### Short Answer Type Questions

Q1. Draw two acute angles and one obtuse angle without using a protractor. Estimate the measures of the angles. Measure them with the help of a protractor and see how much accurate is your estimate.

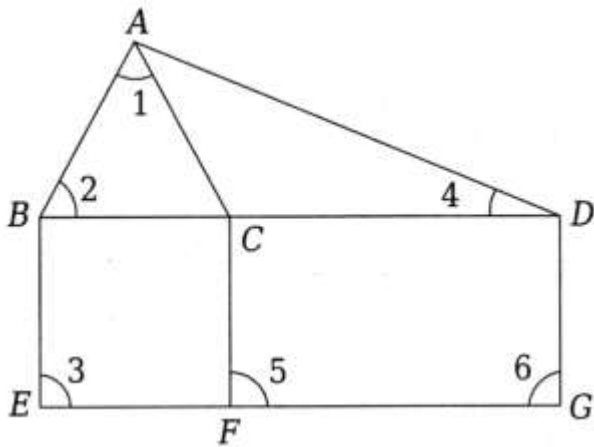
Ans.

### Long Answer Type Questions.

Q1. Can we have two acute angles whose sum is

- (a) an acute angle? Why or why not? \_\_\_\_\_
- (b) a right angle? Why or why not? \_\_\_\_\_
- (c) an obtuse angle? Why or why not? \_\_\_\_\_
- (d) a straight angle? Why or why not? \_\_\_\_\_
- (e) a reflex angle? Why or why not? \_\_\_\_\_

Q2. Write another name for the following angles in the given figure.



- (a)  $\angle 1$  \_\_\_\_\_
- (b)  $\angle 2$  \_\_\_\_\_
- (c)  $\angle 3$  \_\_\_\_\_
- (d)  $\angle 4$  \_\_\_\_\_
- (e)  $\angle 5$  \_\_\_\_\_
- (f)  $\angle 6$  \_\_\_\_\_