

Bhavan's Tripura Vidyamandir
2nd Periodic Assessment: (2025-2026)

Class:- 9

Time:- 2 Hours

Roll:

Name of the student:

Subject:- Mathematics

Total :- 50 Marks

Sec:

General Instruction:

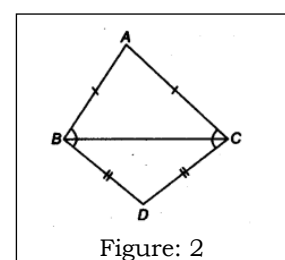
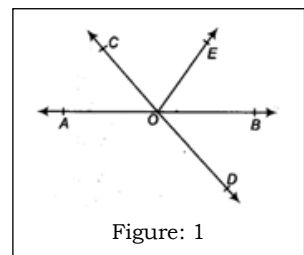
- **Section A** contains 10 questions of 1 mark each.
- **Section B** contains 5 questions of 2 marks each.
- **Section C** contains 4 questions of 3 marks each.
- **Section D** contains 2 questions of 5 marks each.
- **Section E** contains 2 questions (CASE STUDY) of 4 marks each.

SECTION - A

1. What is the sum of the interior angles of a quadrilateral?
a) 180° b) 270° c) 360° d) 90°
2. $(36)^{\frac{3}{2}}$ is equal to
a) 36 b) 6 c) 72 d) 216
3. Degree of the polynomial $5x^2 - 6x - 2$ is
a) 0 b) 2 c) 3 d) -2
4. Write the coefficient of y in the expression of $(5 - y)^2$.
a) 10 b) 5 c) -5 d) -10
5. The angle which is twice its supplement is-
a) 60° b) 120° c) 110° d) 130°
6. A quadrilateral with all sides equal and all angles 90° is called a:
a) Rectangle b) Square c) Kite d) Parallelogram
7. Euclid stated that all right angles are equal to each other in the form of
a) an axiom b) a postulate c) a proof d) a definition
8. Euclid divided his famous treatise "The Elements" into how many chapters?
a) 11 b) 12 c) 13 d) 14
9. Which of the following is not the criterion for congruency of triangles?
a) SSS b) AAA c) RHS d) SAS
10. Two adjacent complementary angles are equal, then angles are
a) $90^\circ, 90^\circ$ b) $45^\circ, 45^\circ$ c) $30^\circ, 30^\circ$ d) $60^\circ, 60^\circ$

SECTION - B

11. Rationalise the denominator of $\frac{1}{\sqrt{7}-\sqrt{6}}$.
12. In the given figure 1, lines AB and CD intersect at O.
If $\angle AOC + \angle BOE = 70^\circ$ and $\angle BOD = 40^\circ$, find $\angle BOE$.
13. Find the value of the polynomial $5x - 4x^2 + 3$ at
i) $x = 0$ ii) $x = 2$
14. If A, B and C are three points on a line, and B lies between A and C, then prove that $AB + BC = AC$.
15. ABC and DBC are two isosceles triangles on the same base BC (In the given figure 2). Show that $\angle ABD = \angle ACD$



SECTION - C

16. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2}AB$.

Explain by drawing the figure.

17. ABCD is a rectangle in which diagonal AC bisects $\angle A$ as well as $\angle C$. Show that:

- i) ABCD is a square ii) diagonal BD bisects $\angle B$ as well as $\angle D$.

18. Show that the angles of an equilateral triangle are 60° each.

19. Show that $0.001001\ldots$ can be expressed in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

SECTION - D

20. ABCD is a rectangle and P, Q, R and S are mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.

21. (a) If $a + b + c = 9$ and $a^2 + b^2 + c^2 = 35$, find the value of $(a^3 + b^3 + c^3 - 3abc)$.

(b) Give one example of binomial of degree 100. (4+1)

SECTION - E (Case Study)

22. David, a student of class IX visited a book shop of his school for purchasing the Maths lab kit.

Mr Roy, who is running the bookshop in school told David that Maths Lab kit consists of a lab manual and a notebook and the total cost of lab kit is $x^2 + 6x + 9$. He also told David that price of Kit includes individual price of Manual and notebook.

Based on the above information answer the following question.

- a) The price of kit is given by $x^2 + 6x + 9$. What is the degree of the equation?
b) $x^2 + 6x + 9$ is which type of equation in term of degree?
c) Find zero of polynomial $x^2 + 6x + 9$.

23. Heya has a quadrilateral shaped paper which she cut from a circular paper. Sandita joined the mid points of all sides, and another quadrilateral was formed. Above figure shows how the paper appears, side $AB = 22$ cm, $BC = 14$ cm, $CD = 10$ cm and $AD = 24$ cm.

- a) Find the measure of the diagonal AC.
b) If $PQ \parallel AC$, then find the measure of PQ.
c) Which type of Quadrilateral PQRS is Quadrilateral?

