

SET NO – 041/01

Roll No.

Candidates must write the Set No. on the title page of the answer book.

DAV PUBLIC SCHOOLS, ODISHA ZONE – I

PERIODIC TEST -2 , 2017-18

- Check that this question paper contains 4 printed pages.
- Set number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate.
- Check that this question paper contains 30 questions.
- Write down the Serial Number of the question before attempting it.
- 15 minutes cooling time has been allotted to read this question paper only and do not write any answer on the answer book during this period.

CLASS – IX

SUB : MATHEMATICS

Time : 3 Hours

Maximum Marks : 80

General Instructions :

- All questions are compulsory.
- There are 4 sections. Section A carries 6 questions of 1 mark each.
- Section B carries 6 questions of 2 marks each.
- Section C carries 10 questions of 3 marks each.
- Section D carries 8 questions of 4 marks each.

Section: A

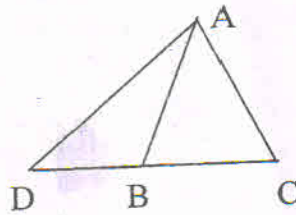
(1 X 6 = 6)

1. Insert an irrational number between $\frac{1}{2}$ and $\frac{3}{5}$.
2. Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $(x - 1)$.
3. How many planes can be made to pass through two distinct points?
4. Find the area of the triangle formed by joining the points $(0,0)$, $(2,0)$ & $(0,-1)$.
5. In two triangles ABC & DEF, it is given that $\angle A = \angle D$, $AC = DF$ & $BC = EF$. Check whether the given triangles are congruent or not.
6. Find the area of an equilateral triangle whose measure of its side is 4cm.

Section: B

(2 X 6 = 12)

7. If $x + y = 12$ & $xy = 27$, find $x^3 + y^3$.
8. Plot the points A(1,0), B(4,0) & C(1,3). Find the coordinate of point D such that ABCD is a square.
9. Find the distance between (-3,2) & (-3,6).
10. If a point C lies between two points A and B on AB such that $AC=BC$, use Euclid's Axiom to prove that $AC = \frac{1}{2}AB$
11. Diagonal AC of a quadrilateral ABCD bisects the angles A and C. Prove that $AB=AD$.
12. In the given figure, $AB=AC$ & D is any point on CB produced. Show that $AD > AB$.



Section: C

(3 X 10 = 30)

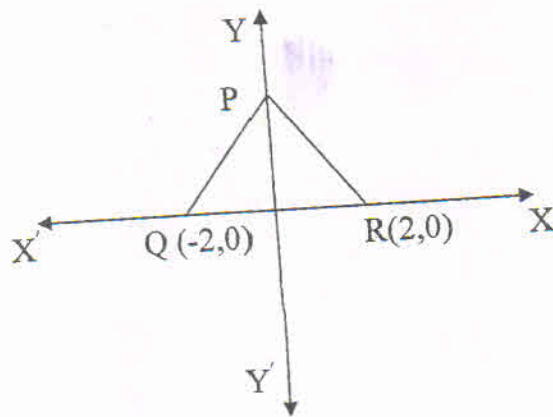
13. Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is exactly divisible by $x^2 - 3x + 2$.
14. Find the coordinate of the point
 - a. Which lies on both the axes?
 - b. Whose abscissa is -4 and lies on X-axis?
 - c. Which is 5 units far from X-axis & 2 units far from Y-axis and lies on 1st quadrant?
15. Plot the points A (4,0) & B(0,4). Join A,B to origin O. Find the area of triangle OAB.
16. The side BC of $\triangle ABC$ is produced to D. The bisector of $\angle A$ meets BC in L. Prove that $\angle ABC + \angle ACD = 2\angle ALC$
17. Find the measure of an angle, if eight times its complement is 20° less than three times its supplement.
18. Prove that sum of any two sides of a triangle is greater than twice the median with respect to the third side.
19. AB and CD are respectively the smallest and longest sides of a quadrilateral ABCD. Show that $\angle A > \angle C$ and $\angle B > \angle D$

20. Two sides AB, BC & median AM of ΔABC are respectively equal to sides PQ, QR & median PN of ΔPQR . Show that $\Delta ABC \cong \Delta PQR$.
21. Find the area of an equilateral triangle of side measure 'a' units by using Heron's formula.
22. In a rectangular field of dimension 50m x 30m, a triangular park is constructed. If the dimensions of the park are 14m, 15m & 13m, find the area of the remaining field.

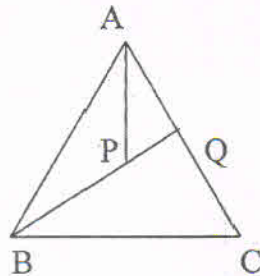
Section: D

(4 X 8 = 32)

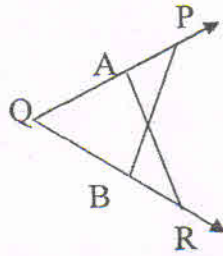
23. Find the value of a and b if $\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a+b\sqrt{5}$
24. In the given figure, PQR is an equilateral triangle with coordinates Q & R as (-2,0) & (2,0) respectively. Find the coordinate of the vertex of point P.



25. For spreading the message "Save Environment, Save Future", a rally was organised by some students of a school. They were given triangular cardboard pieces ABC which they divide into 2 parts by drawing the angle bisectors BO & CO of base angle B and C. Prove that $\angle BOC = 90^\circ + \frac{1}{2}\angle A$. what is the benefits of these types of rallies?
26. BE and CF are two equal altitudes of a ΔABC . Using RHS congruence rule, prove that the triangle is isosceles.
27. The sides AB, AC of a ΔABC are equal and 'P' is any point within the triangle on the bisector of $\angle BAC$. BP produced meets AC in 'Q'. Prove that $BP > PQ$.



28. In the given figure, $PQ=QR$, & $\angle PAR = \angle RBP$. Prove that $AR = PB$.



29. A field is in the shape of a trapezium, its parallel sides are 25m & 10m and the non-parallel sides are 14m & 13m. Find the area of the field.
30. Sides of a triangle are in the ratio of 12:17:25 and its perimeter is 540cm. Find its area.
