

**INTERNATIONAL INDIAN SCHOOL - DAMMAM**  
**SUMMATIVE ASSESSMENT – I, 2015 – 2016**

**MATHEMATICS**

**CLASS – IX**

**SET - A**

Time Allowed : 3 hours

Maximum Marks : 90

**General Instructions :**

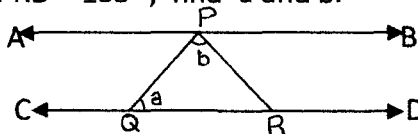
- \* All questions are compulsory.
- \* The question paper consists of 31 questions divided into 4 sections A , B , C and D.
- \* Section A comprises of 4 questions of 1 mark each.
- \* Section B comprises of 6 questions of 2 marks each.
- \* Section C comprises of 10 questions of 3 marks each.
- \* Section D comprises of 11 questions of 4 marks each.
- \* There is no overall choice in this question paper.
- \* Use of calculator is not permitted.

**Section - A**

1. Write the equations of x- axis and y-axis.
2. Find the area of an equilateral triangle if one of its side is  $2\sqrt{3}$  cm.
3. Find 2 irrational numbers between 2.35 and 2.75.
4. What is the value of  $\sqrt[3]{343} + \sqrt{36}$ .

**Section – B**

5. If the polynomial  $3x^4 - 4x^3 - 3x - 1$  is divided by  $x - 1$  , then find the remainder.
6. Locate  $\sqrt{5}$  on number line.
7. In fig: ,  $AB \parallel CD$  ,  $\angle APQ = 60^\circ$  ,  $\angle PRD = 135^\circ$  , find a and b.



8. Find the area of a triangle whose two sides are 24cm and 10cm and its perimeter is 62cm.
9. In fig:, if  $AC = BD$ , then prove that  $AB = CD$ .



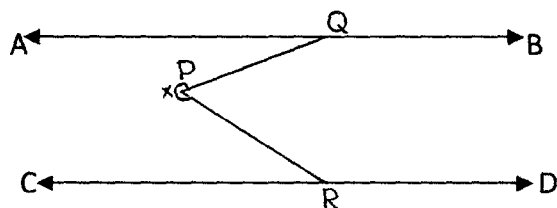
10. Find the value of p , if  $x+3$  is a factor of  $2x^3 - 3px^2 + p + 3$ .

### Section – C

11. Plot the points A(-2,-2) , B(6,0) ,C(0,4) , D(-3,2) on graph paper. Write the quadrants or axis on which these points lie. Name the shape of the figure obtained by joining the points in order.
12. Prove that every line segment has one and only one midpoint.
13. Express  $0.\overline{237}$  in the form of  $\frac{p}{q}$ .
14. Write the expanded form of  $(x - y)^3$  and use it to find the value of  $99^3$ .
15. State and prove the Angle Sum Property of a triangle.
16. Simplify :  $[9(\sqrt[3]{64} + \sqrt[3]{125})^3]^{\frac{1}{4}}$ .
17. If  $a + b + c = 9$ ,  $ab + bc + ca = 26$ , find  $a^2 + b^2 + c^2$ .
18.  $\triangle ABC$  is an isosceles triangle in which  $AB = AC$ . Side BA is produced to D such that  $AD = AB$ . Show that  $\angle BCD$  is a right angle.
19. Find x, if  $(\frac{3}{7})^x \cdot (\frac{7}{3})^{2x} = \frac{343}{27}$ .
20. Factorise :  $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$ .

### Section – D

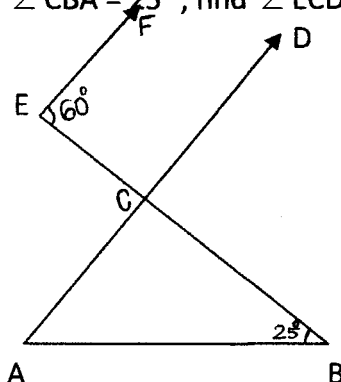
21. If  $AB \parallel CD$ ,  $\angle AQP = 40^\circ$ ,  $\angle PRD = 60^\circ$ , find x.



22. The volume of a cuboid is  $p(x) = x^3 + 13x^2 + 32x + 20$ . Find the possible expressions for dimensions of the cuboid.
23. Jamuna has a triangular field with sides 240m, 200m and 360m, where she grew wheat. In another triangular field with sides 240m, 320m, and 400m adjacent to the previous field, she wanted to grow rice and onions. She divided the field into two parts by joining the midpoint of the longest side to the opposite vertex and grew rice in one part and onions in other part. How much area has been used for wheat, rice and onion separately?. She wishes to donate a part of the products to an orphanage. What value is shown by Jamuna?
24.  $\triangle PQR$  and  $\triangle QSR$  are two isosceles triangles with  $PQ = PR$ ,  $QS = SR$  and the common base QR. Show that PS bisects QR at right angle.

25. If  $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - b\sqrt{3}$ , find the values of a and b.

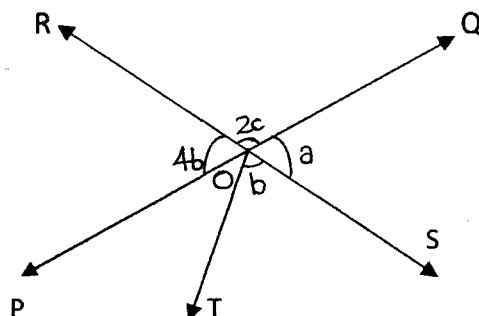
26. In fig., if  $CD \parallel EF$ ,  $\angle FEC = 60^\circ$ ,  $\angle CBA = 25^\circ$ , find  $\angle ECD$ ,  $\angle CAB$ .



27. Factorise :  $(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3$ .

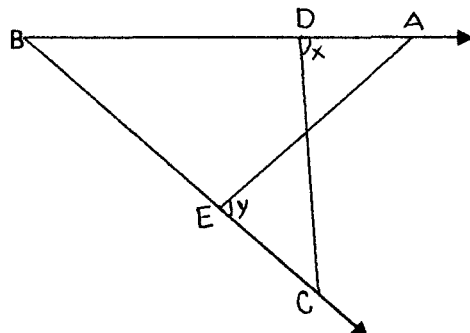
28. If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

29. In fig., PQ and RS intersect each other at O. If  $\angle POT = 75^\circ$ , find a, b, c.



30. If  $a + b = 11$ ,  $ab = 28$ , find the value of  $a^3 + b^3$ .

31. In fig.,  $\angle x = \angle y$ ,  $AB = BC$ . Prove that  $AE = CD$ .



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