

INTERNATIONAL INDIAN SCHOOL , DAMMAM

ANNUAL EXAMINATION 2017 - 2018

CLASS IX
TIME: 3 HOURS

SUBJECT : MATHEMATICS
MAX: MARKS: 80

SET A

General Instructions

(I). All questions are compulsory

(II). The question paper consists of 30 questions divided in to four sections A,B,C,D.

(III). Section A consists of 6 questions of 1 mark each. Section B consists of 6 questions of 2 marks each. Section C consists 10 questions of 3 mark each. Section D consists of 8 questions of 4 marks each.

(IV). There is no overall choice. However, an internal choice has been provided in three questions of 3 marks each and four questions of 4 marks each. You have to attempt only one of the alternatives in such questions.

(V). Use of calculator is not permitted.

SECTION A (6 X 1 = 6 MARKS)

1. In a cricket match, a batsman hits a boundary 10 times out of 40 balls he plays, find the probability that he didn't hit the boundary.
2. Find the class mark of the class 100 – 120.
3. Abscissa of a point is positive in ----- and ----- quadrants.
4. Find two irrational numbers between 0.3 and 0.7.
5. Find **k**, if $(-2,-2)$ is a solution of the equation $2x - ky = 9$.
6. If the volume and surface area of a sphere are numerically equal, then find its radius.

SECTION B (6 X 2 = 12 MARKS)

7. Ten observations 6, 14, 15,17 , **p**+1, **2p**- 13 ,30, 32 ,34, 43 are written in ascending order. The median of the data is 24. Find **p**.
8. The number of books issued from a public library in a week are 1028, 1129, 1538, 1605, 1236, 1575, 1611. Find the probability that the number of books issued on a day is (i) less than 1500 (ii) more than 1500.
9. An equilateral triangle has perimeter 30cm. Find the area of the triangle.
10. Prove that cyclic parallelogram is a rectangle.

11. Expand using suitable identity $(3x - 2y + z)^2$.
12. Show that the diagonals of a rhombus are perpendicular to each other.

SECTION C (3X 10 = 30 MARKS)

13. 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.
14. Represent $\sqrt{7.5}$ on the number line geometrically.

OR

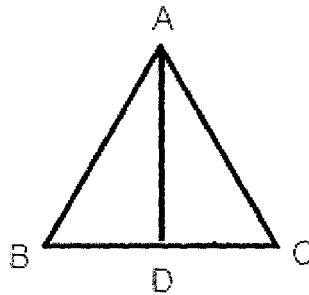
Locate $\sqrt{5}$ on the number line.

15. Find $x^3 - y^3$, if $x - y = -7$ and $xy = -10$.
16. Prove that the sum of the angles of a triangle is 180° .

OR

Prove that if two lines intersect each other, then vertically opposite angles are equal.

17. AD is an altitude of an isosceles triangle ABC in which $AB = AC$. Show that
(i) AD bisects BC
(ii) AD bisects $\angle A$



18. If the circumference of the base of a cylinder is 132cm and height is 25cm.
Find its capacity in litres.
19. Find the coordinates of these points and locate them on the Cartesian plane.
(i) Point where abscissa is -2 and ordinate is 5
(ii) Point in the second quadrant whose distance from both axes is 7 units.
(iii) Point on x-axis whose distance from y-axis is 4units.

20. Give the geometrical representation of $2x - 2 = 7$ on
(i) Number line (ii) Cartesian plane.

21. Show that diagonals of a parallelogram divides it in to four triangles of equal area.

22. A triangle and parallelogram have the same base and the same area. If the sides of the triangle are 26cm, 28cm and 30cm, and the parallelogram stands on the base 28cm, find the height of the parallelogram.

SECTION D(8 X 4 = 32 MARKS)

23. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

OR

If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.

24. Find **a** and **b** if $\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = a - \sqrt{15} b$.

25. The following table shows a frequency distribution for the speed of cars passing through a high way.

Class interval	frequency
30 - 40	3
40 - 50	6
50 - 60	25
60 - 70	65
70 - 80	50
80- 90	28
90 - 100	14

Draw a histogram and frequency polygon representing the data above in the same graph sheet.

26. The taxi fare in a city is as follows:

For the first kilometer, the fare is Rupees 8 and for subsequent distance it is Rupees 5 per km. Taking distance covered as x km and total fare as Rupees y .

Write a linear equation for this information and draw its graph.

OR

Draw the graph of the linear equation $3x + 4y = 6$. Find the points where the line representing the equation $3x + 4y = 6$ cuts the axes of x and y .

27. The volume of a vessel in the form of right circular cylinder is 448π cm^3 . and its height is 7cm. Find the radius of its base. Also find its total surface area.

These vessels were distributed in flood affected villages along with other supplies by the students of a school. What values are depicted here?

OR

A free medical camp was organized by the school. Students of Class X were asked to help in making tents for the camp.

i. How many metres of cloth 2.5m wide, will be required to make a conical tent whose base radius is 7m and height 24metres?

ii. What values are depicted here?

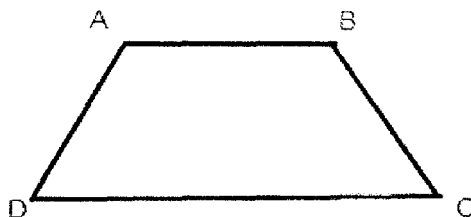
28. Factorise $x^3 - 3x^2 - 9x - 5$

29. ABCD is a trapezium in which $AB \parallel CD$ and $AD = BC$. Show that

(i) $\angle A = \angle B$

(ii) $\angle C = \angle D$

(iii) $\triangle ABC \cong \triangle BAD$



OR

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

30. Construct a triangle $\triangle ABC$ in which $\angle B = 30^\circ$, $\angle C = 90^\circ$ and

$AB + BC + AC = 11\text{cm}$.