

KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION
SAMPLE PAPER 03 FOR HALF YEARLY EXAM (2017-18)

SUBJECT: MATHEMATICS(041)

BLUE PRINT FOR HALF YEARLY EXAM: CLASS IX

Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (4 marks)	Total
Number System	1(1)	--	6(2)	4(1)	11(4)
Polynomials	1(1)	2(1)	3(1)	4(1)	10(4)
Coordinate Geometry	1(1)	--	3(1)	4(1)	8(3)
Linear Equation in two variables	1(1)	2(1)	3(1)	4(1)	10(4)
Introduction to Euclid's Geometry	--	2(1)	3(1)	--	5(2)
Lines and Angles	1(1)	2(1)	3(1)	4(1)	10(4)
Triangles	--	2(1)	3(1)	4(1)	9(3)
Quadrilaterals	1(1)	2(1)	3(1)	4(1)	10(4)
Areas of Parallelograms and triangles	--	--	3(1)	4(1)	7(2)
Total	6(6)	12(6)	30(10)	32(8)	80(30)

MARKING SCHEME FOR HALF YEARLY EXAM

SECTION	MARKS	NO. OF QUESTIONS	TOTAL
VSA	1	6	08
SA – I	2	6	12
SA – II	3	10	30
LA	4	8	32
GRAND TOTAL			80

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SUBJECT: MATHEMATICS
CLASS : IX

MAX. MARKS : 80
DURATION : 3 HRS

General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains **30** questions divided into four Sections A, B, C and D.
- (iii). **Section A** comprises of 6 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 and **Section D** comprises of 8 questions of **4 marks** each.
- (iv). Use of Calculators is not permitted

SECTION – A

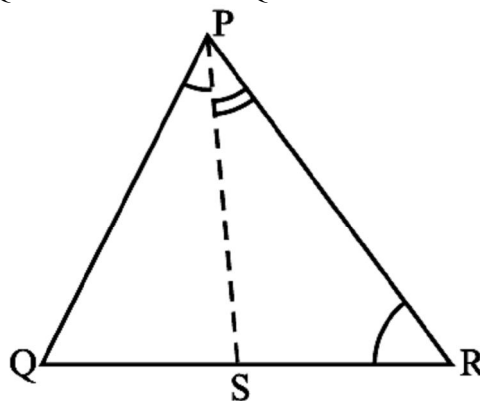
1. Write the coordinates of the point lying on y-axis with y-coordinate -3 .
2. Factorize: $12x^2 - 7x + 1$
3. Simplify: $(256)^{\frac{5}{8}}$
4. In $\triangle ABC$, $AB = 5$ cm, $BC = 8$ cm and $CA = 7$ cm. If D and E are respectively the mid-points of AB and BC, determine the length of DE.
5. The angles of triangle are $(x + 10^\circ)$, $(2x - 30^\circ)$ and x° . Find the value of x.
6. Write the linear equation such that each point on its graph has an ordinate 3 times its abscissa.

SECTION – B

7. In below Fig. , if $AC = BD$, then prove that $AB = CD$



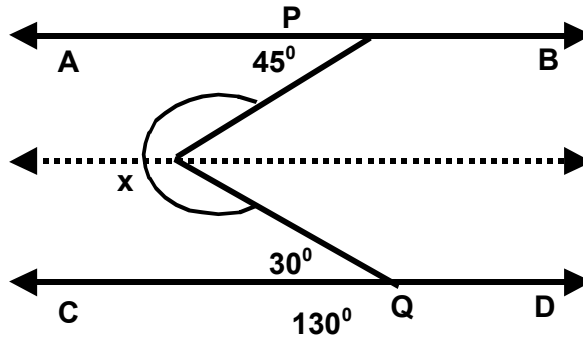
8. One angle of a quadrilateral is of 108° and the remaining three angles are equal. Find each of the three equal angles.
9. In the below figure, $PR > PQ$ and PS bisects $\angle QPR$. Prove that $\angle PSR > \angle PSQ$.



10. At what point does the graph of the linear equation $x + y = 5$ meet a line which is parallel to the y-axis, at a distance 2 units from the origin and in the positive direction of x-axis.

11. Without actually calculating the cubes, find the value of $(28)^3 + (-15)^3 + (-13)^3$

12. In the adjoining figure, find the value of x



SECTION – C

13. Plot the following points and write the name of the figure thus obtained : P(-3, 2), Q (-7, -3), R (6, -3), S (2, 2).

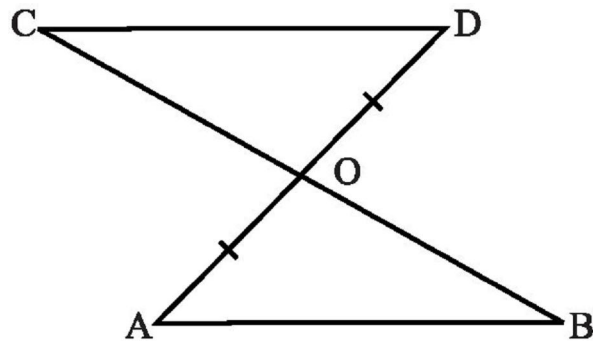
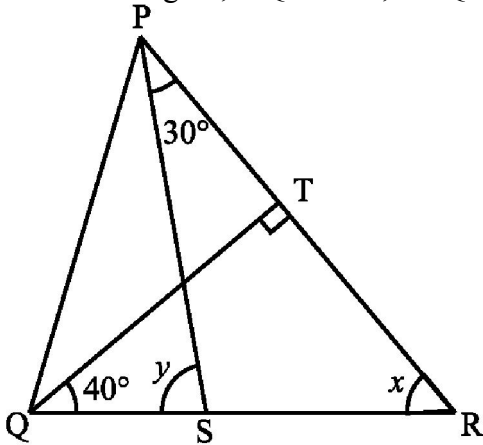
14. Visualize $\sqrt{4.26}$ on the number line, using successive magnification upto 4 decimal places.

15. Show that the bisectors of angles of a parallelogram form a rectangle.

16. Write seven axioms of Euclid's Geometry.

17. Solve the equation $2y + 9 = 0$, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

18. In the below figure, if $QT \perp PR$, $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, find x and y .



19. Line-segment AB is parallel to another line-segment CD. O is the mid-point of AD (see the above right sided figure). Show that (i) $\triangle AOB \cong \triangle DOC$ (ii) O is also the mid-point of BC.

20. Show that $0.23535353\dots$ can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

21. Show that a median of a triangle divides it into two triangles of equal areas.

22. If $x + y = 12$ and $xy = 27$, find the value of $x^3 + y^3$.

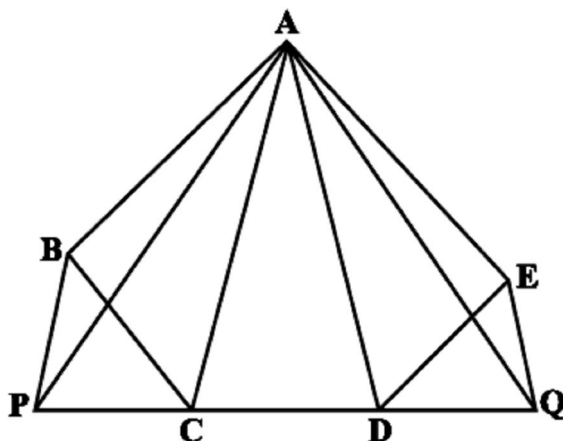
SECTION – D

23. Prove that the sum of any two sides of a triangle is greater than twice the median drawn to the third side.

24. If polynomials $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$ leaves the same remainder when each is divided by $x - 4$, find the value of a .

25. Simplify $\frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}} + \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ by rationalizing the denominator.

26. In the below figure, ABCDE is any pentagon. BP drawn parallel to AC meets DC produced at P and EQ drawn parallel to AD meets CD produced at Q. Prove that ar (ABCDE) = ar (APQ)



27. Three vertices of a rectangle are $(4, 2)$, $(-3, 2)$ and $(-3, 7)$. Plot these points and find the coordinates of the fourth vertex.

28. Prove that “The line segment joining the mid-points of two sides of a triangle is parallel to the third side and half of it.”

29. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y , write a linear equation for this information, and draw its graph.

30. In the above right sided figure, the side QR of $\triangle PQR$ is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then prove that $\angle QTR = \frac{1}{2} \angle QPR$.

