B.K. BIRLA CENTRE FOR EDUCATION
SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY–CUM–BOYS' RESIDENTIAL SCHOOL

TERM-1 EXAMINATION (2025-26)
MATHEMATICS (QP)

Class: IX   **Time: 3 hrs.**
Date: 05.09.25   **Max Marks: 80**
**Admission no:**   **Roll no:**

General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each.
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 questions carrying 05 marks each.
6. Section E has 3 case based integrated units of assessment (04 marks each) with sub- parts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided.

SECTION A

1. If the decimal representation of a number is non-terminating, non-repeating then the number is
   a) A natural number   b) a whole number   c) an irrational number   d) a rational number

2. On adding $2\sqrt{3}$ and $3\sqrt{2}$, we get
   a) $5\sqrt{5}$ (b) $5(\sqrt{3}+\sqrt{2})$ c) $2\sqrt{3}+3\sqrt{2}$ d) none of these

3. What is the area of an equilateral triangle with side 9 cm?
   a) $\sqrt{6}$cm²   b) $9\sqrt{3}$cm²   c) $\sqrt{8}$cm²   d) none of these

4. The sides of a triangle are 8 cm, 11 cm and 13 cm. its area is :
   a) $8\sqrt{30}$cm²   b) $4\sqrt{10}$cm²   c) $3\sqrt{100}$cm²   d) $6\sqrt{200}$cm²

5. The zero of $p(x) = 2x - 8$ are:
   a) 4   b) -2   c) 2   d) -4

6. When $x = 1$, which of the following is the value of p $(x) = 5x - 4x^2 + 3$?
   a) 2   b) 4   c) -4   d) -2

7. The polynomial $1 + 3x$ is
   a) Quadratic   b) Cubic   c) Linear   d)None of the these

8. If two adjacent angles are supplementary, then they form a:
   a) Linear pair   b) Right angle pair   c) Parallel lines   d) Perpendicular lines

9. In the figure, $p \parallel q$. The value of x is:
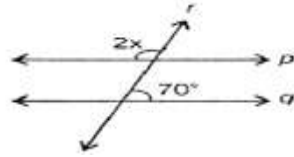
a) 35°   b) 55°   c) 70°   d) 110 ^{0}

10. If AOB is a line then the measure of ∠BOC, ∠COD and ∠DOA respectively in the given figure, are:
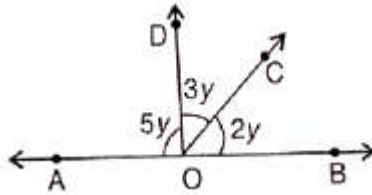
a) 36°, 54°, 90°   b)90°, 54°, 36°   c) 90°, 36°, 54°   d)36°, 90°, 54°

11. The points (4, 0) lies

a) First quadrant   b) Second quadrant   c) Third quadrant   d) x - axis

12. If the coordinates of the two points are P (4, 5) and Q (2 , 9), then (abscissa of P) + (abscissa of Q) is

a) 6   b) -6   c) –2   d) 1

13. A point lies in second quadrant and is equidistant from both axes. What can be its coordinates?

a) -3 , 3   b) -4 , 4   c) 5 , 5   d) -5 , -5

14. Which of the following are irrational numbers?

a) $\sqrt{23}$ b) $\sqrt{225}$ c) 0.3796   d) 7.478478

15. The perimeter of an equilateral triangle is 60 m. Then its area is :

a) 10√3 m²   b) 15√3 m²   c) 20√3 m²   d) 100√3 m²

16. Δ ABC is an isosceles triangle in which altitudes BE and CF are drawn to equal sides AC and AB
     Respectively then:
     a) BE > CF   b) BE < CF   c) BE = CF   d) None of these

17. For two triangles, if two angles and the included side of one triangle are equal to two angles
     and the included side of another triangle. Then the congruency rule is:

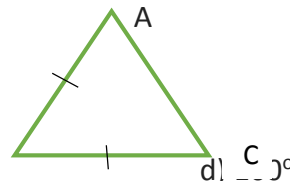a) SSS   b) ASA   c) SAS   d) None of the above

18. In ΔABC, BC = AB and ∠B = 80°. Then ∠A is equal to

   a) 80°   b) 40°   c) 5   d) _ _)°

19. **Assertion:** x^2 + 7 is a quadratic polynomial.

   Reason: degree of polynomial 2 is called quadratic polynomial.

    a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

    b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

    c.) Assertion is true but the reason is false.

   d.) Both assertion and reason are false.

20. **Assertion: :** A point whose abscissa is 3 and ordinate is -2 lies in fourth quadrant

    Reason: Points of the type (-- , +) lie in the second quadrant

    a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

    b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

    c.) Assertion is true but the reason is false.

    d.) Both assertion and reason are false.

SECTION B

21. Simplify: i) $(\sqrt{5} + \sqrt{2})^2$ ii) $(125)^{-1/3}$

22. Write the cubes in expanded form : $(\frac{3x}{2} + 1)^3$

OR

Evaluate using suitable identity : $(102)^3$

23. In figure, lines XY and MN intersect at 0. If ∠POY = 90° , and a : b = 2 : 3. find c.
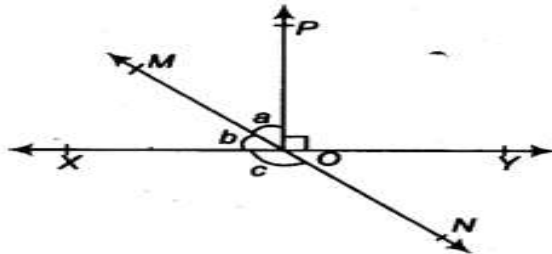
24. Find the distances of points A (-3, -2) from x – axis and B (5, 2) from y – axis.

OR

In which quadrant or on which axis do the following points lie?

(-2 , 4) , (3 , - 1) , (4 , 4) , (-1 , 0) , (-1 , -1) and (0 , 10)

25. Determine whether (x + 1) is a factor of following polynomial or not.

p $(x) = x^4 + x^3 + x^2 + x + 1$

SECTION C

26. a) Express in $\frac{p}{q}$ form : $0.\overline{001}$
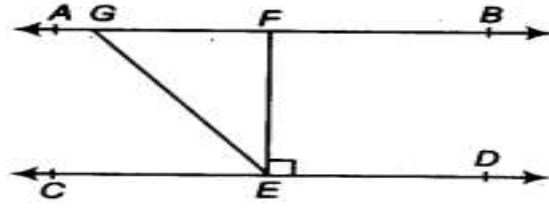
   b) Find SIX rational numbers between 3 and 4.

27. Use suitable identity to find the product : i) $(x + 5) (x + 7)$ ii) $(3 x + 4) (3 x - 4)$

28. Factorise : $6x^2 + 5 x - 6$

OR

Factorise : i) $(x + 5) (x - 10)$ ii) $\frac{25}{4} - \frac{y^2}{9}$
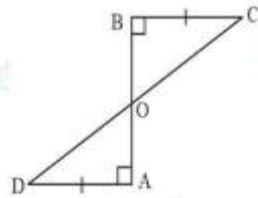
29. if AB || CD, EF ⊥ CD and ∠GED = 126°, find ∠AGE, ∠GEF and ∠FGE.

OR

It is given that ∠XYZ = 64° and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects ∠ZYP, find ∠XYQ and reflex ∠QYP.

30. Write the name of the quadrilateral formed by joining the points
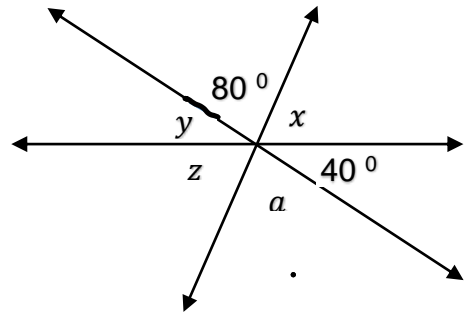
A(1 , 1) , B (6 , 1) , C (4 , 5) and D (3 , 5)

31. AD and BC are two equal perpendiculars to a line segment AB. Show that CD bisects AB.

SECTION D

32. Sides of a triangle are in the ratio 3: 5 : 7 and its perimeter is 300 m Find its area

33. Find x , y , z and a using the below given figure.

34. Rationalise the denominator and simplify : $\frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}}$
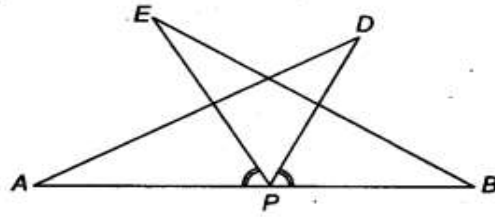
OR

Evaluate : $(\frac{81}{16})^{-3/4}$ [$(\frac{25}{9})^{-3/2} \div (\frac{5}{2})^{-3}$]

35. AB is a line segment and P is its mid-point. D and E are points on the same side of AB

such that ∠ BAD = ∠ ABE and ∠ EPA = ∠ DPB. Show that
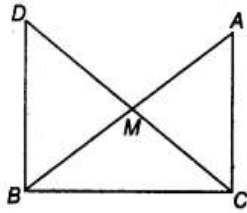(i) ΔDAP ≅ ΔEBP   (ii) AD = B E

OR

In right triangle ABC, right angled at C, M is the mid-point of hypotenuse AB.
C is joined to M and produced to a point D such that DM = CM. Point D is joined to point B.
Show that
i) ΔAMC ≅ ΔBMD   ii) ∠DBC is a right angle (iii) ΔDBC ≅ ΔACB

SECTION E

36. According to a data, around one and a half lakh persons die due to road accident per
     year in India. According to a research, mostly accidents occur due to ignorance of traffic rules.
     To spread awareness about traffic rules, B K Birla School initiated a step in this matter and
     provided all schools of Pune the traffic signal board, indicating "SCHOOL AHEAD" is an
     equilateral triangle with side '**a**'.

   i) What is semi perimeter of the triangle?   1
   ii) If the perimeter of the triangle is 180 cm, then find the each side of the triangle.   2
                      OR
     What is area of triangle If each side is 90 cm   2
   iii) Write the formula to find area of the equilateral triangle.   1

37. There is a square park ABCD in the middle of Saket colony in Surat. Four children Deepak,
     Ashok, Arjun and Deepa went to play with their balls. The colour of the ball of Ashok,
     Deepak, Arjun and Deepa are red, blue, yellow and green respectively.
     All four children roll their ball from centre point O in the direction of **XOY, X'OY, X'OY'
     and XOY'**. Their balls stopped as shown in the following image.
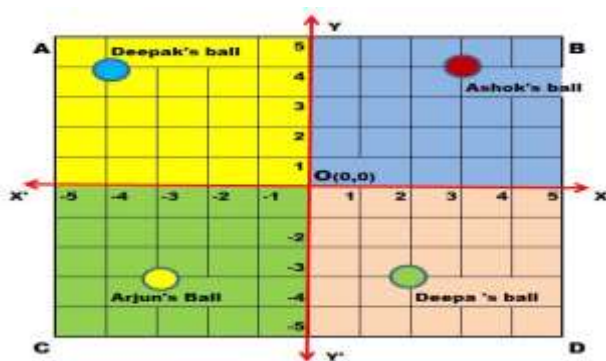
Answer the following questions:

i) What are the coordinates of the ball of Ashok?   2

           OR

     What are the coordinates of the ball of Deepak?   2

ii) What the line XOX' is called?   1

iii) What is the ordinate of the ball of Arjun?   1

38. Once the Maths teacher of class IX D told students that today we will prove that the sum of all three angles is 180. As shown in the figure, he told to draw any triangle ABC in the notebook. Further side BC was extended to D.
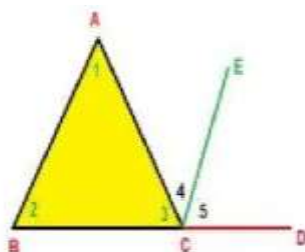
Now the teacher said to draw CEIIBA. Further angles were named 1 to 5 as shown in the figure.
Now answer the following questions:

i) BA II CE and AC is the transverse line, so ∠1 is equal to which angle?   1

ii) What is sum of∠ 3 + ∠ 4 + ∠ 5? , Give reason.   2

         OR

$\angle 1 = 70^0$, $\angle 2 = 55^0$, find $\angle 3$ 2

iii) Is ∠ 4 + ∠ 5 = ∠1 + ∠ 2 ? Give reason for your answer   1

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********* ALL THE BEST ***********