



DELHI PUBLIC SCHOOL, CHANDIGARH

Periodic Test - 2, Session 2023-24

Class: IX, Subject: Maths (Set 2)

Time: 3 hrs

Aashita

MM: 80

General Instructions:

1. This Question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.
2. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.
3. Section B has 5 Very Short Answer (VSA)-type questions of 2 marks each.
4. Section C has 6 Short Answer (SA)-type questions of 3 marks each.
5. Section D has 4 Long Answer (LA)-type questions of 5 marks each.
6. Section E has 3 source based/case based/passage based/integrated units of assessment (4 marks each) with sub parts.
7. All Questions are compulsory. However, an internal choice in 2 Questions of 5 marks, 2 Questions of 3 marks and 2 Questions of 2 marks has been provided.
8. Draw neat figures wherever required.

Section - A

1. Which of the following is an irrational number?

a) 2.34343...	c) 2.344444...
b) 2.3333333...	d) 2.3434434443...
2. If x, y and z are positive real numbers, then $\sqrt{x^{-1}y} \times \sqrt{y^{-1}z} \times \sqrt{z^{-1}x}$ is equals to

a) 1	c) \sqrt{xyz}
b) xyz	d) $\frac{1}{xyz}$
3. A point whose abscissa and ordinate are -3 and 4 respectively, lies in

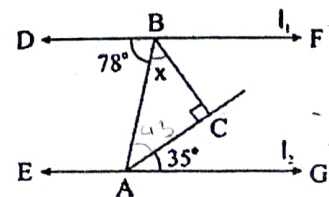
a) First quadrant	c) Third quadrant
b) Second quadrant	d) Fourth quadrant
4. The coordinates of a point where the linear equation $3x - y = 4$ intersects y - axis is

a) $(-4, 0)$	c) $(0, -4)$
b) $(4/3, 0)$	d) $(3, 4)$
5. In ΔXYZ , if $\angle Y + \angle Z = \angle X$, then ΔXYZ is

a) an isosceles triangle	c) an equilateral triangle
b) an obtuse triangle	d) a right triangle
6. In ΔABC and ΔPQR , if $\angle A = \angle R$, $AC = RQ$ and $AB = RP$, then which one of the following congruence conditions applies?

a) SAS	c) ASA
b) SSS	d) RHS
7. In the given figure, $l_1 \parallel l_2$, the value of 'x' is

a) 37°	c) 45°
b) 43°	d) 47°



Assertion – Reasoning based MCQ's:

Read the following statements carefully to mark the correct option out of options given below:

- a) Both Assertion and Reason are correct and Reason is correct explanation for Assertion
- b) Both Assertion and Reason are correct but Reason is not correct explanation for Assertion
- c) Assertion is correct but Reason is false
- d) Both Assertions and Reason are false

19. **Assertion:** 3.453 is a terminating decimal.

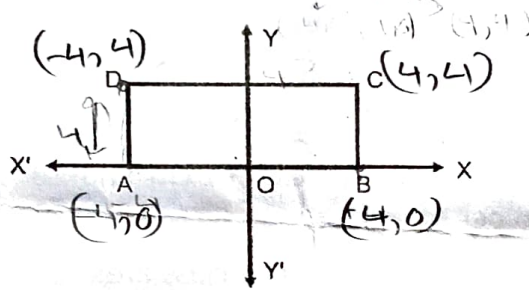
Reason: A decimal in which a digit or a set of digits is repeated periodically, is called a repeating, or a recurring decimal. *b)*

20. **Assertion:** If $f(x) = 5x^9 - x^6 + 2x - 8$ is a polynomial, then its degree is 9.

Reason: Degree of a polynomial is the highest power of the variable in it. *b) b(c)*

SECTION B

21. In the given figure, ABCD is a rectangle with length 8 cm and breadth 4 cm. O is the mid-point of AB. Find the coordinates of A, B, C, D.

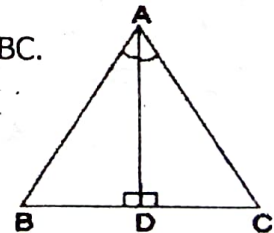


- 22. Find the value of k, if $(1, -1)$ is a solution of the equation $2x - ky = 9$. *✓ k = 7*
- 23. Find two solutions of the equation $3x + 2y = 18$. *$\frac{x}{6} \frac{y}{9}$ $x = \frac{18-2y}{3}$*
- 24. State and explain Euclid's fifth postulate.

OR

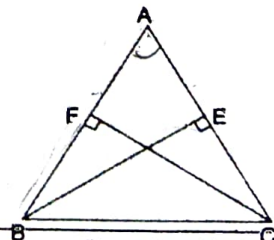
✓ If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2} AB$. Explain by drawing the figure.

25. In ΔABC , AD is the bisector of $\angle A$ and is perpendicular to side BC. Show that ΔABC is isosceles in which $AB = AC$. *SAS, cpet*



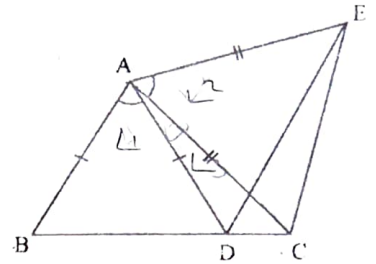
OR

ABC is an isosceles triangle in which altitudes BE and CF are drawn to equal sides AC and AB respectively, Show that $BE = CF$.



Section - C

26. Express $0.\overline{63}$ in the form of $\frac{p}{q}$ where p and q are integers and $q \neq 0$. $\frac{7}{11}$
27. Evaluate $(3x - 5y + 2z)^2$ by using suitable identity. ✓
28. If two lines intersect each other, then prove that the vertically opposite angles are equal.
29. In the given figure, $AC = AE$, $AB = AD$ and

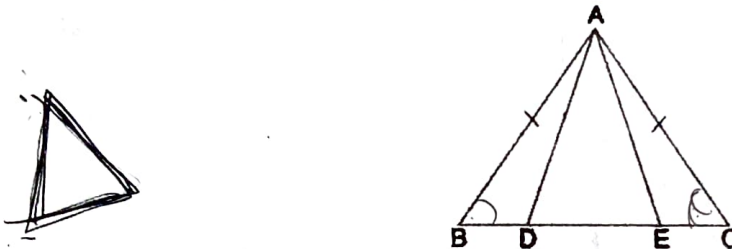


$\angle BAD = \angle EAC$. Show that $BC = DE$. Show that

- (i) $\triangle ABC \cong \triangle ADE$ SAS, $L1 + L3$, $L2 + L3$
 (ii) $BC = DE$. c.p.c.t.

OR

In a given isosceles triangle ABC, $AB = AC$, D and E are points on BC such that $BE = CD$. Show that $AD = AE$.



30. The edges of a triangular board are 12 cm, 14 cm and 10 cm. Find the cost of painting it at the rate of ₹ 6 per sq. cm.

31. The number of books issued to 10 students in a class are:

12, 17, 8, 14, 10, 15, 14, 16, 13, 12

- (i) Calculate mean number of books issued to the students.
 (ii) Find mode of the given data.

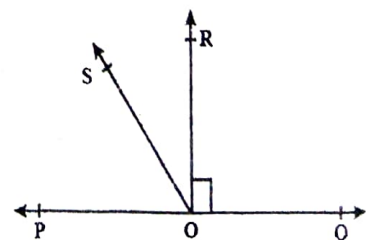
Section - D

32. Find the value of 'a' and 'b' if $\frac{4+\sqrt{5}}{3+\sqrt{5}} = a + b\sqrt{5}$
33. Factorise: $x^3 - 2x^2 - 5x + 6$ $\frac{7}{4} \quad -\frac{1}{4}$

OR

✓ If $(x - 1)$ and $(x + 3)$ are the factors of $x^3 - ax^2 - 13x + b$, then find the values of a and b. $a = 2, b = -\frac{20}{3}$

34. In the given figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR.



Prove that $\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$.

5. Draw a frequency polygon of the weekly pocket expenses of 130 students of a school given below:

Weekly Pocket Expenses (in ₹)	Number of Students
0 - 10	15
10 - 20	10
20 - 30	20
30 - 40	15
40 - 50	25
50 - 60	45

OR

- Draw a histogram of the given data:

Class Interval	Frequency
5 - 10	8
10 - 15	6
15 - 25	20
25 - 45	12
45 - 75	24

Section - E

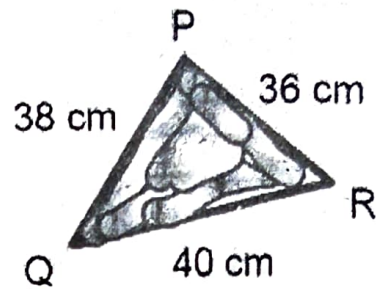
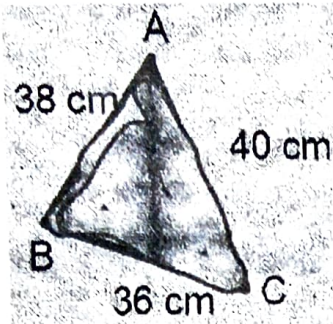
36. An algebraic expression of the form $a_n x^n + a_{n-1} x^{n-1} + a_{n-2} x^{n-2} + \dots + a_1 x + a_0$ where $a_0, a_1, a_2, a_3, \dots, a_n$ are real numbers and n is a whole number is called a polynomial in the variable x . If $a_0 \neq 0$, then, answer the following questions:

- a) What is the degree of a non-zero constant polynomial. $(x) \rightarrow \Delta$ (1)
- b) What is the coefficient of x in $x^3 - 2x^2 - x + 2$. -1 (1)
- c) Find the value of a polynomial $x^2 - 4x + 5$ at $x = 1$. (2)

OR

- Write a binomial of degree 80.

37. In a garden, there are two triangular flower beds. Flower bed ABC has sides $AB = 38$ cm, $BC = 36$ cm, and $CA = 40$ cm. Flower bed PQR has sides $PQ = 38$ cm, $QR = 40$ cm, and $RP = 36$ cm. Based on the given information, answer the following questions:

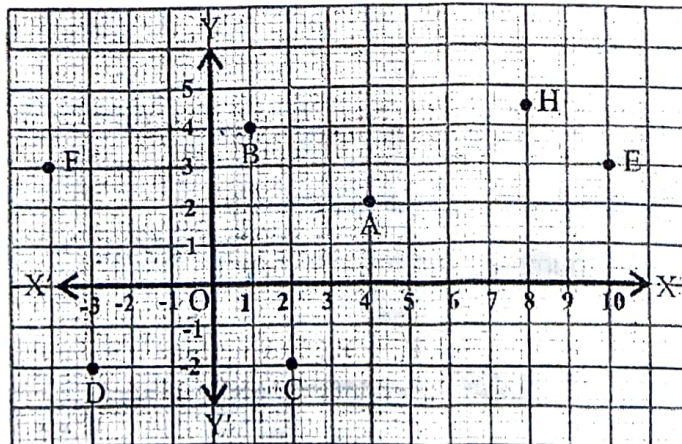


- Can we conclude that flower bed ABC is congruent to flower bed QPR? (1)
- Suppose flower bed ABC is shifted to a new location within the park without changing its shape or size. In this new location, is flower bed ABC congruent to its original position? Why or why not? (1)
- If $\angle A = 50^\circ$ and $\angle B = 40^\circ$ in flower bed ABC, what is the measure of $\angle C$? (2)

OR

Write three conditions for which flowerbed ABC is congruent to flower bed QPR.

38. Student of class IX are on visit of Sansad Bhawan. Teacher assigns them the activity of observe and take some pictures to analyses the seating arrangement between various MP and speaker based on coordinate geometry. The staff tour guide explained various facts related to Math's of Sansad Bhawan to the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.



- What are the coordinates of position 'A'? (1)
- In which quadrant point H lies? (1)
- Find the distance of points B and C from X-axis and Y-axis respectively. (2)

OR

Calculate the distance between the positions C and D.