



AN EDUCATIONAL INSTITUTE

Unit Test Series 02 (2023-24)

SUBJECT: MATHEMATICS

CLASS : IX

MAX. MARKS : 40

DURATION : 90 min

Syllabus : Ch - 3 Coordinate geometry , Ch - 4 Linear equations in two variables
Ch - 5 introduction to Euclid geometry

General Instruction:

This Question Paper has 5 Sections A-E.

1. **Section A** has 5 MCQs carrying 1 mark each.
2. **Section B** has 3 questions carrying 02 marks each.
3. **Section C** has 5 questions carrying 03 marks each.
4. **Section D** has 1 questions carrying 04 marks each.
5. **Section E** has 2 questions carrying 05 marks each .
6. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated

SECTION – A

Questions 1 to 5 carry 1 mark each.

1. A linear equation in two variables is of the form $ax + by + c = 0$, where:

- (a) $a^2 + b^2 \neq 0$ (b) $a = 0, b \neq 0$ (c) $a \neq 0, b = 0$ (d) $a = 0, c = 0$

2. which of the following is not the solution of equation $x + 2y = 4$?

- (a) (0 , 2) (b) (4 , 0) (c) (-2 , 3) (d)(1,1)

3. For(2,5),find the value for twice the ordinate added to abscissa

- (a) 10 (b) 12 (c) 9 (d) 15

4. Which of these statements do not satisfy Euclid's axiom?

- (a) Things which are equal to the same thing are equal to one another
(b) If equals are added to equals, the wholes are equal.
(c) If equals are subtracted from equals, the remainders are equal.
(d) The whole is lesser than the part.

5. The point which lies on the Y axis at a distance of 5 units in the negative direction of the Y axis is

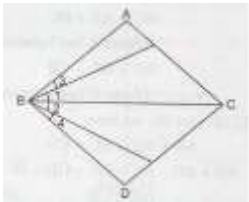
- (a) (5,0) (b) (0,5) (c) (-5,0) (d)(0,-5)

SECTION – B

Questions 6 to 8 carry 2 mark each.

6. Write a linear equation for the statement "Twice a number decreased by 7 gives 69". Also, find one solution. How many solutions does the equation have?

7. In figure, we have $\angle 1 = \angle 2$, $\angle 3 = \angle 4$. Show that $\angle ABC = \angle DCB$. State the Euclid's axiom used.

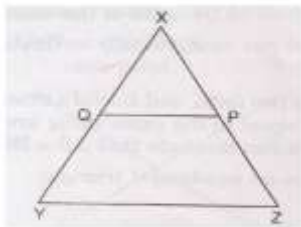


8. State Euclid's fifth postulate and draw the figure to justify.

SECTION – C
Questions 9 to 13 carry 3 mark each.

9. If $\left(\frac{x}{3}\right) + 2y = 5$ express x in terms of y. Also, check whether $x = 3$, $y = 2$ is the solution of this equation or not?

10. In figure, if $QX = \frac{1}{2} XY$, $PX = \frac{1}{2} XZ$, and $QX = PX$, show that $XY = XZ$.



11. If $x = 2\sqrt{2}$ and $y = \sqrt{2}$ satisfy the linear equation $3x + ky = 4\sqrt{2}$, find the value of k. Can there be more than one value of k?

12. Find three solution in ordered pairs of the linear equation $2x + y = 4$ by converting y in terms of x only.

13. Write the coordinates of the vertices of a rectangle whose length and breadth are 6 and 3 units respectively, one vertex at the origin, the longer side lies on the y-axis and one of the vertices lies in the second quadrant.

SECTION – D
Questions 14 carry 4 mark each.

14. Raghav has a very good bond with his father. Most of time, Raghav used to ask things in puzzle form to his father. One time he placed a puzzle to his father in question form as if present age of son is 5 less than 3 times the father's age, then asked following questions to father:

- i) Frame the given situation in linear equation form by taking father age as x yrs and son as y yrs.
- ii) After 10 years, father will be 3 more than twice the age of son, what will be equation in 2 variables.
- iii) Find the coordinate on X axis and on Y axis where the equation $3x + 2y = 9$ cuts the X axis and Y axis without plotting graph.

Or

Find the value of k if $(2, 3k)$ is a solution of equation $(3k+1)x + 2y = 10$



SECTION – E
Questions 15 to 16 carry 5 mark each

15. On environment day, class 9 students got five plants of mango, silver oak, orange, banyan and amla from soil department. Students planted the plants and noted their location (x, y)

	Mango	Silver Oak	Orange	Banyan	Amla
x	2	3	0	-3	-2
y	0	4	7	4	0

Plot the points (x, y) in the graph and join them in the given order. Name the figure you get. Which social act is being done by students of class 9?

16. Show that the required points $A(1, 2)$, $B(-1, -16)$ and $C(0, -7)$ lie on the given graph of the linear equation $y = 9x - 7$ and find two more solutions. Also find the value of k if $(2k+1, 3k-2)$ is a solution of given linear equation.

End

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