Mathematics

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(Chapter – 13) (Two Variables, One Line) (Assignment 1)

(Class – 9)

Name _____ Date _____

Answer all 15 questions. Choose one option for each MCQ. Show your working and give reasons where required. Figures are schematic unless stated otherwise.

Section A: Multiple Choice Questions

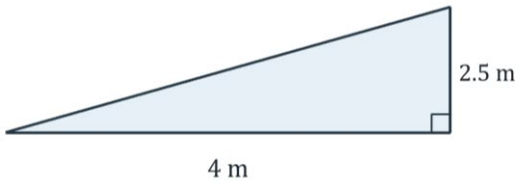
1. Write a linear equation in two variables in which $a = 3$, $b = 0$ and $c = -\frac{1}{5}$.

(a) $3x + 0y - 1/5 = 0$
(b) $3x + y - 1/5 = 0$
(c) $3x + 0y + 1/5 = 0$
(d) $x + 3y - 1/5 = 0$

2. The cost of a notebook is twice the cost of a pen. Consider the cost of a notebook to be ₹t and that of a pen to be ₹p. Charlie wrote $t = 2p$, whereas Meera wrote $p = 2t$. Which of these two representations is correct?

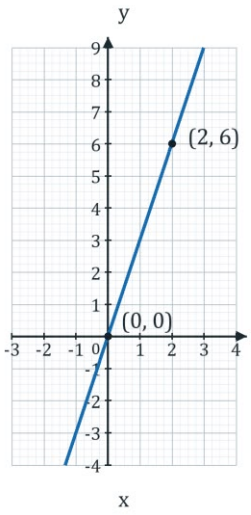
(a) Only Meera
(b) Both Charlie and Meera
(c) Only Charlie
(d) Neither

3. The ramp at a loading dock rises 2.5 metres over a run of 4 metres. Find the slope of the ramp.



(a) 1.6
(b) 0.625
(c) 2.5
(d) 6.5

4. The graph of the line $y = 3x$, passing through (0, 0) and (2, 6) is given below.
What is the y-intercept of the line? Explain its significance.



(a) 0; the initial level is zero
(b) 3; the initial level is 3 cm
(c) 6; the initial level is 6 cm
(d) 2; the initial level is 2 cm

5. Which equation represents a horizontal line?

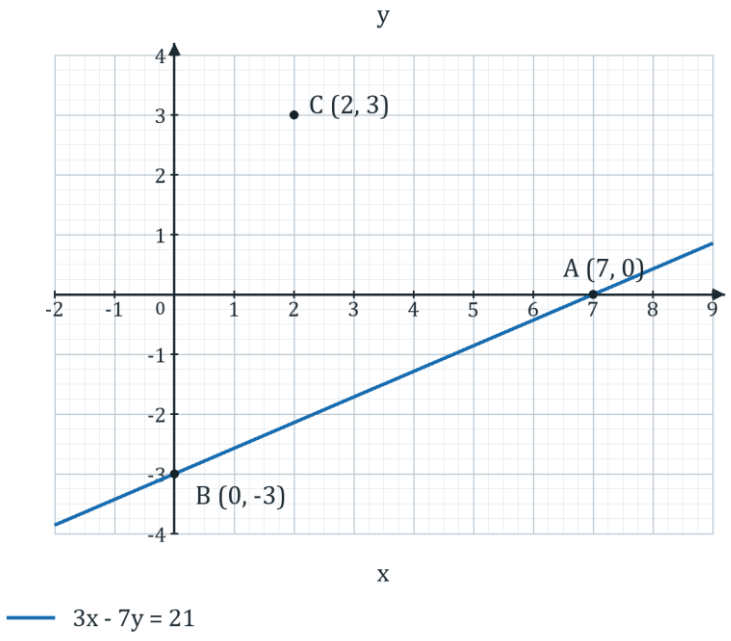
(a) x = 4 (b) y = 4
(c) x + y = 4 (d) y = 4x

Section B: Very Short Answer Questions

6. Verify if the ordered pair (4, 3) is a solution of 5x – 6y = 2. Explain your reasoning.

Answer:

7. Consider the graph of the equation 3x – 7y = 21 shown below. Does the point C (2, 3) lie on the line? Does it satisfy the equation? Can points that do not lie on the line satisfy the equation?



Answer:

8. Find any two solutions for each of the following equation:

$$7x - 3y = 21$$

Answer:

9. In the equations given below, m and n are unknown constants: $2mx + 3y = 7$; $4x + ny = -10$. If $(2, -1)$ is the solution of both equations, find the values of m and n.

Answer:

10. State whether the following sentence is True or False. Justify your answer.

A linear equation in two variables has only one solution.

Answer:

Section C: Short and Long Answer Questions

11. Find two solutions which lie in different quadrants for each of the following linear equations. Identify the quadrants in which the points lie.

$$5x + 3y = 7$$

Verify your solutions by representing the linear equations on a graph paper.

Answer:

12. Form a pair of linear equations for the following problem and find their solutions.
The sum of two integers is +5 and their difference is –21. Find the two numbers.

Answer:

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13. A tank initially contains 25 litres of water. Water enters at 3 litres per minute. Write an equation for the volume y after x minutes, draw its graph for $0 \le x \le 10$, and find when the volume reaches 40 litres.

Answer:

14. Form a pair of linear equations and find their common solutions graphically.

10 students of Grade 9 took part in a Mathematics quiz. If the number of girls is 4 more than the number of boys, find the number of boys and girls who took part in the quiz.

Answer:

15. Form a pair of linear equations for the following problem and find their solutions.

The coach of a cricket team buys 7 bats and 6 balls for ₹8880. Later, she buys 3 bats and 5 balls for ₹4000. Find the cost of each bat and each ball.

Answer: