Mathematics

(www.tiwariacademy.com)

(Chapter – 13) (Two Variables, One Line) (Assignment 5)

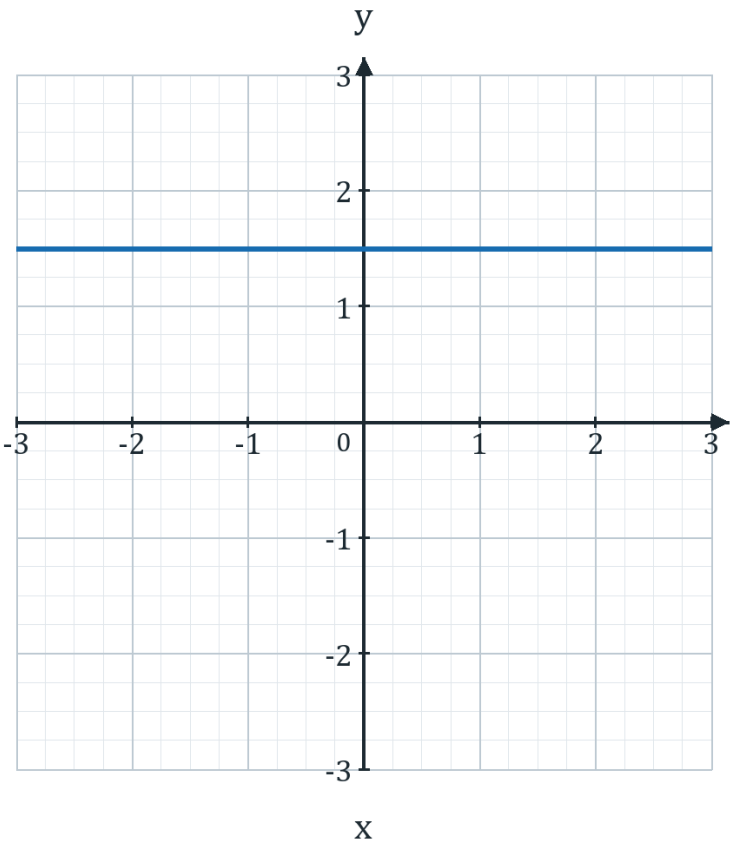
(Class – 9)

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. Find the slope of the line *l* in each of the following diagrams.



(a) −1
(b) 0
(c) 1
(d) Undefined

2. Find the value of '*k*' for which the following system of equations represents a pair of coincident lines:

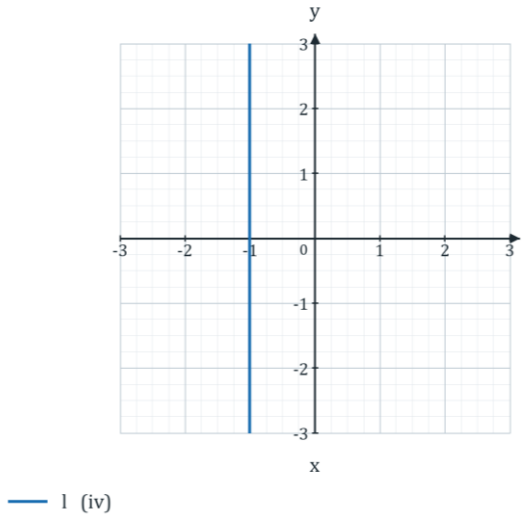
$$x + 2y = 3;\ (k - 1)x + (k + 1)y = k + 3.$$

(a) 1
(b) 2
(c) 3
(d) 4

3. Write each of the following equations in standard form, ax + by + c = 0, and indicate the values of a, b and c in each case: 3y = 5

(a) 0x + 3y − 5 = 0; (0, 3, −5)
(b) 3x + 0y − 5 = 0; (3, 0, −5)
(c) 0x + 3y + 5 = 0; (0, 3, 5)
(d) x + 3y − 5 = 0; (1, 3, −5)

4. Find the slope of the line *l* in each of the following diagrams.



(a) −1
(b) 0
(c) 1
(d) Undefined

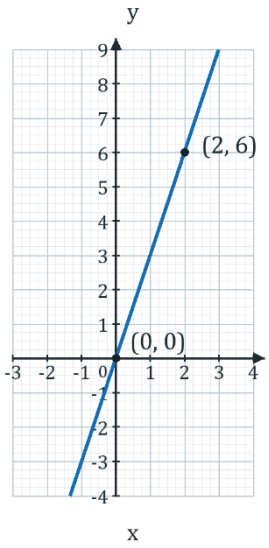
5. The line 3x + 2y = 12 meets the x-axis at which point?

(a) (0, 6)
(b) (4, 0)
(c) (0, 4)
(d) (6, 0)

Section B: Very Short Answer Questions

6. The graph of the line $y = 3x$, passing through (0, 0) and (2, 6) is given below.
Identify the slope of the line from the graph and explain how you calculated it using the two points on the line.

Answer:



7. In countries like the USA, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Celsius to Fahrenheit:

$$F = \frac{9}{5}C + 32$$

If the temperature is 0 °C, what is the temperature in Fahrenheit and if the temperature is 0 °F, what is the temperature in Celsius?

Answer:

8. In countries like the USA, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Celsius to Fahrenheit:

$$F = \frac{9}{5}C + 32$$

Is there a temperature which is numerically the same in both Fahrenheit and Celsius? If yes, find it.

Answer:

9. Show that the equations $ax + by = c$ and $kax + kby = kc$, with $k \neq 0$, have the same set of solutions.

Answer:

10. Complete the following table after expressing the given linear equations in standard form.

Linear equation in two variables	Standard Form	Coefficient of x	Coefficient of y	Constant term
$y - 15 = \sqrt{2}\,x$				
$3y - 2x = 0$				
$5x = 3y$				
$x = 8$				
$3y = 1$				

Answer:

Section C: Short and Long Answer Questions

11. Which of the following pairs of linear equations have solutions? If they have solutions, find them graphically.

$$x - y = 8,\ 3x - 3y = 16$$

Answer:

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

Five years ago, Nuri was thrice as old as Sonu. Ten years later, Nuri will be twice as old as Sonu. How old are Nuri and Sonu?

Answer:

13. Printing Shop A charges ₹12 plus ₹4 per copy. Shop B charges ₹24 plus ₹2 per copy. Form the cost equations, draw their graphs for 0 to 10 copies, and find when each shop is cheaper.

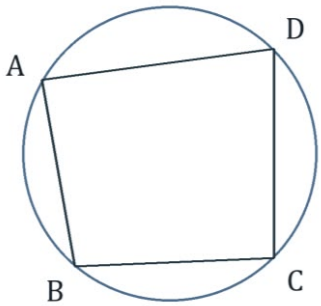
Answer:

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

Meena went to a bank to withdraw ₹2000. She asked the cashier to give her ₹50 and ₹100 notes only. Meena got 25 notes in all. Find how many notes of ₹50 and ₹100 did she receive?

Answer:

15. In a cyclic quadrilateral ABCD, $\angle A = (x + 7)°$, $\angle B = (y + 8)°$, $\angle C = (3y + 23)°$ and $\angle D = (4x + 12)°$. Find all four angles of the cyclic quadrilateral.



Answer: