Mathematics

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(Chapter – 13) (Two Variables, One Line) (Assignment 2)

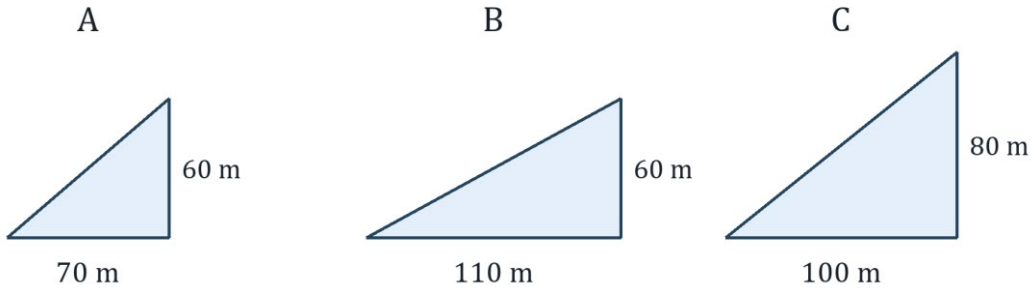
(Class – 9)

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.

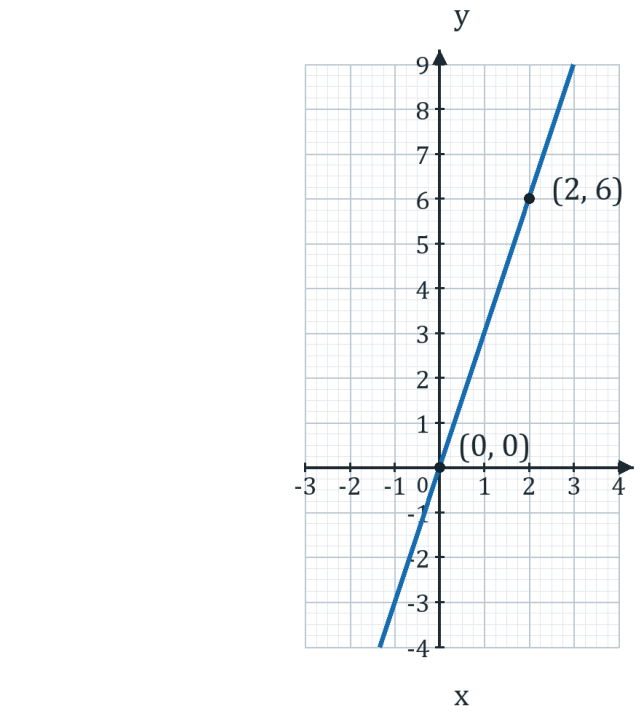
Section A: Multiple Choice Questions

1. The following diagrams represent ski hills. Rank the hills in order of their steepness, from least to greatest.



(a) A, B, C
(b) B, A, C
(c) B, C, A
(d) C, B, A

2. The graph of the line $y = 3x$, passing through (0, 0) and (2, 6) is given below.
A water tank is being filled so that the water level y (in cm) after x minutes follows this graph.
How high is the water after 5 minutes?



(a) 5 cm
(b) 8 cm
(c) 15 cm
(d) 18 cm

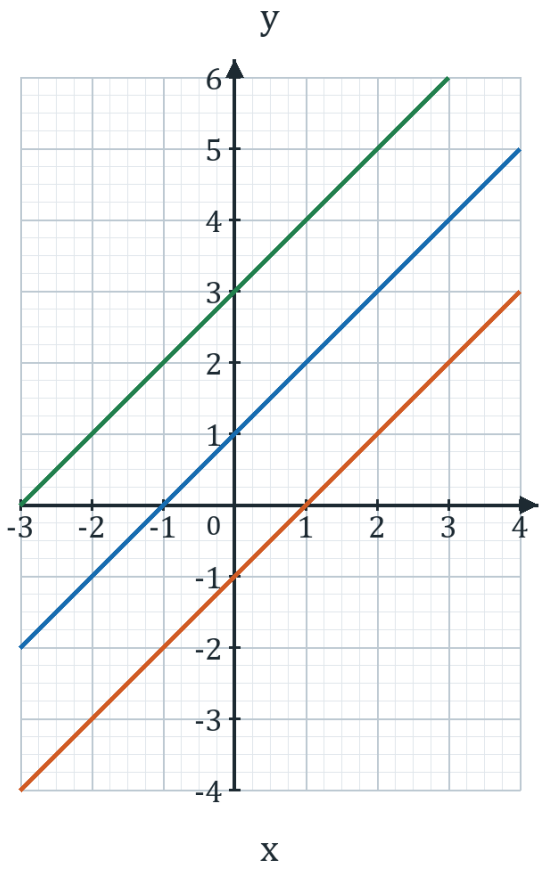
3. In countries like the USA, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Celsius to Fahrenheit:

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

If the temperature is 30 °C, what is the temperature in Fahrenheit?

(a) 54 °F
(b) 62 °F
(c) 86 °F
(d) 95 °F

4. How many lines exist that have a given slope?



(a) Exactly one
(b) Exactly two
(c) No lines
(d) Infinitely many

5. A line passes through (0, 2) and (3, 8). What is its slope?

(a) 1/2
(b) 2
(c) 3
(d) 6

Section B: Very Short Answer Questions

6. On two different days a family buys movie tickets and snack boxes. Let the cost of one movie ticket be ₹x and the cost of one snack box be ₹ y. Frame a pair of linear equations in x and y to represent the following situations:

(i) On the first day, the family buys 2 movie tickets and 3 snack boxes for ₹850.

(ii) On the second day, the family buys 4 movie tickets and 1 snack box for ₹1100.

Answer:

7. Two friends, Sahil and Meena, travelled by taxi. Let the fixed charge for one taxi trip be ₹ x and the additional charge per kilometre be ₹y. Frame a pair of linear equations in x and y to represent the following situation:

(i) Sahil travelled 6 km and paid a total fare of ₹122.

(ii) Meena travelled 8 km and paid a total fare of ₹160.

Answer:

8. In a sports meet, tickets for adults cost ₹150 each and tickets for children cost ₹100 each. A total of 200 people attended the meet, and the total amount collected from ticket sales was ₹25,000. Frame a pair of linear equations in x and y to represent this situation.

Answer:

9. State whether the following sentence is True or False. Justify your answer.
The graph of a linear equation in two variables always passes through the origin.

Answer:

10. Find any two solutions for the following equation:

$$2x + 3y = 5$$

Answer:

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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 equation on a graph paper.

Answer:

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

A fraction becomes equal to $\frac{9}{11}$ if 2 is added to both the numerator and the denominator. If 3 is added to both the numerator and the denominator, it becomes equal to $\frac{5}{6}$. Find the fraction.

Answer:

13. Draw the graphs of $y = 2x + 4$ and $y = 3x + 1$. Find their intersection graphically and verify it algebraically.

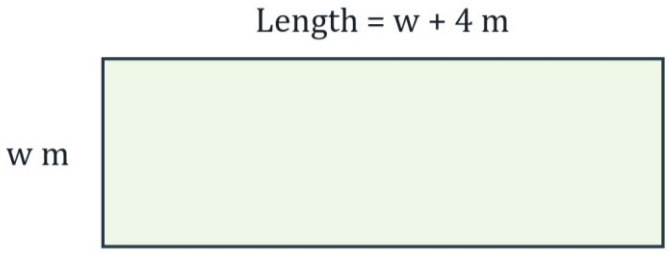
Answer:

14. Check whether the following pairs of linear equations have solutions? If they have solutions, find them graphically.

$$2x + y - 6 = 0, 4x - 2y - 4 = 0$$

Answer:

15. Half the perimeter of a rectangular garden, whose length is 4 *m* more than its width, is 36 *m*. Find the dimensions of the garden.



Answer: