

Unit 4 Practice Test – Analyse Linear Relations

Part A: Knowledge and Understanding

Multiple Choice: For each question, select the best answer. (9 marks)

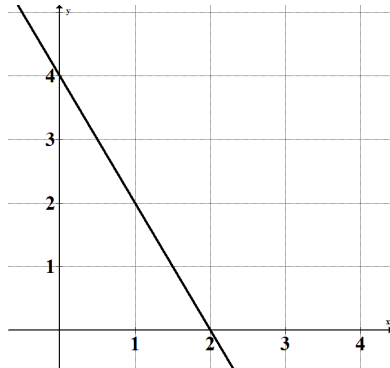
1. What is the slope and y-intercept of the line given by the equation: $y = x - 2$?

A. slope = -2, y-intercept = 1
B. slope = 1, y-intercept = 2
C. slope = 1, y-intercept = -2
D. slope = 0, y-intercept = 2

2. What is the slope y-intercept form of $3x + 2y - 5 = 0$?

A. $y = -\frac{3}{2}x + \frac{5}{2}$ B. $y = -3x + 5$
C. $y = -\frac{3}{2}x + 5$ D. $y = \frac{2}{3}x - \frac{5}{2}$

3. Identify the x-intercept and y-intercept of this graph.



A. x-intercept = 4, y-intercept = 2
B. x-intercept = 2, y-intercept = 4
C. x-intercept = 4, y-intercept = -2
D. x-intercept = -2, y-intercept = 4

4. Determine the x-intercept and y-intercept of $4x + 2y = 8$

A. x-intercept = 4, y-intercept = 2
B. x-intercept = 2, y-intercept = 8
C. x-intercept = 2, y-intercept = 4
D. x-intercept = 8, y-intercept = 2

5. Which pair of lines are parallel?

A. $y = -3x + 4$ and $y = 3x + 4$
B. $y = \frac{1}{2}x + 5$ and $y = 0.5x - 3$
C. $y = \frac{3}{2}x - 3$ and $y = -\frac{2}{3}x + 4$
D. $y = 2x - 7$ and $y = 3x - 7$

6. Which pair of lines are perpendicular?

A. $y = -3x + 4$ and $y = 3x + 4$
B. $y = \frac{1}{2}x + 5$ and $y = 0.5x - 3$
C. $y = \frac{3}{2}x - 3$ and $y = -\frac{2}{3}x + 4$
D. $y = 2x - 7$ and $y = 3x - 7$

7. Which pair of lines are perpendicular?

A. $y = 3x + 4$ and $y = 3x + 6$
B. $y = x + 5$ and $y = -x - 3$
C. $y = \frac{3}{2}x - 3$ and $y = \frac{2}{3}x + 4$
D. $y = 0.5x - 7$ and $y = 2x - 5$

8. Which equation has a slope of 1 and goes through the point (3, 5)?

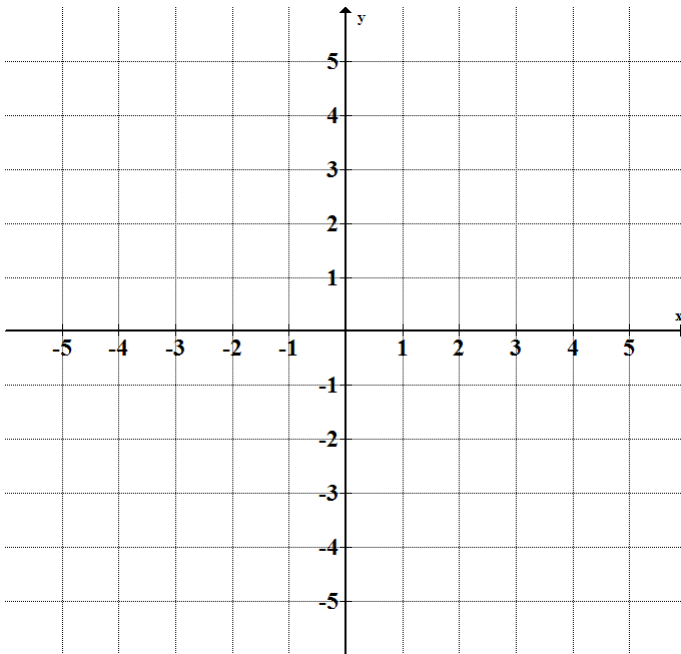
A. $y = x + 5$
B. $y = x + 3$
C. $y = x + 2$
D. $y = x - 2$

9. Which equation has a slope of -3 and goes through the point (0, -4)?

A. $y = 0.75x + 3$
B. $y = 3x + 4$
C. $y = -0.75x - 4$
D. $y = -3x - 4$

10. Solve the linear system given below by graphing. Verify your solution by substituting the coordinates of your solution into both equations.

$y = 2x - 4$ and $x + 3y - 9 = 0$ (6 marks)



The solution to the linear system is _____.

Verify Below

11. Write the equation of two lines that are perpendicular to the line $4x + y - 2 = 0$. (4 marks)

12. Write the equation of two lines that are parallel to the line $3x - 6y - 5 = 0$. (5 marks)

13. Find an equation for the line perpendicular to $4x - 5y = 20$ and sharing the same y-intercept. (4 marks)

14. Find an equation for the line passing through the points $(-3, 4)$ and $(-2, -6)$. (6 marks)

15. Write the equations of two vertical lines AND two horizontal lines. (4 marks)

16. In Niagara-on-the-Lake, you can ride a horse-drawn carriage for a fixed price plus a variable amount that depends on the length of the trip. The variable cost is \$10/km and a 2.5-km trip costs \$40.

- a. Determine the equation relating cost, C, in dollars, and distance, d, in kilometres. (3 marks)
- b. What is the fixed cost to take a ride? (1 mark)
- c. Use your equation to find the cost of a 6.5-km ride. (2 marks)