MATHEMATICS MCQ BOOKLET

Grade 9 · Chapter 8 · Geometry of Straight Lines

FBISE / National Book Foundation Model Textbook companion

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Independent MCQs on slope, intercepts, standard forms of a line, angles, and families of lines. Not copied from the book exercise. Total: 108 questions. Each item has four options, the correct letter, and a short explanation of why it is correct.

A. Important / Main Topics

1. The inclination of a straight line is the angle it makes with the positive x-axis, measured:

(A) anticlockwise from the positive x-axis
(B) clockwise from the y-axis
(C) from the origin only
(D) clockwise from the negative x-axis

Correct Answer: A

Explanation: Inclination θ is taken from the positive x-axis in the anticlockwise sense.

2. A line parallel to the x-axis is called:

(A) vertical
(B) horizontal
(C) oblique
(D) normal

Correct Answer: B

Explanation: Horizontal lines have inclination 0° and never meet the x-axis (unless they are the x-axis itself).

3. A line parallel to the y-axis is called:

(A) horizontal
(B) oblique
(C) vertical
(D) a ray

Correct Answer: C

Explanation: A line parallel to the y-axis is called vertical.

4. A line that is neither horizontal nor vertical is called:

(A) normal
(B) axial
(C) null
(D) oblique

Correct Answer: D

Explanation: A line that is neither horizontal nor vertical is called oblique.

5. The inclination of a horizontal line is:

(A) 0°
(B) 90°
(C) 45°
(D) undefined

Correct Answer: A

Explanation: A horizontal line does not rise, so θ = 0°.

6. The inclination of a vertical line is:

(A) 0°
(B) 90°
(C) 180°
(D) 45°

Correct Answer: B

Explanation: A vertical line is perpendicular to the x-axis.

7. Gradient (slope) of a line is the ratio:

(A) run / rise
(B) rise × run
(C) rise / run
(D) run − rise

Correct Answer: C

Explanation: Steepness is vertical change divided by horizontal change, which is also tan θ.

8. If a line has inclination θ, its gradient m is:

(A) sin θ
(B) cos θ
(C) cot θ
(D) tan θ

Correct Answer: D

Explanation: By definition m = tan θ for a non-vertical line.

9. The gradient of a line with inclination 45° is:

(A) 1
(B) √3
(C) 0
(D) undefined

Correct Answer: A

Explanation: The gradient of a line with inclination 45° is 1.

10. The gradient of a line with inclination 60° is:

(A) 1
(B) √3
(C) 1/√3
(D) 0

Correct Answer: B

Explanation: The gradient of a line with inclination 60° is √3.

11. The gradient of a line with inclination 30° is:

(A) √3
(B) 1
(C) 1/√3
(D) 0

Correct Answer: C

Explanation: The gradient of a line with inclination 30° is 1/√3.

12. If m = 1.732 (approximately √3), the inclination is:

(A) 30°
(B) 45°
(C) 90°
(D) 60°

Correct Answer: D

Explanation: tan 60° ≈ 1.732, so θ = tan□¹(1.732) = 60°.

13. Gradient of a horizontal line is:

(A) 0
(B) undefined
(C) 1
(D) ∞

Correct Answer: A

Explanation: tan 0° = 0, so a horizontal line has slope 0.

14. Gradient of a vertical line is:

(A) 0
(B) undefined
(C) 1
(D) −1

Correct Answer: B

Explanation: tan 90° is undefined, so a vertical line has no real slope.

15. If A(x1, y1) and B(x2, y2) lie on a non-vertical line, then m equals:

(A) (x2 − x1)/(y2 − y1)
(B) (y2 + y1)/(x2 + x1)
(C) (y2 − y1)/(x2 − x1)
(D) y2/x2 only

Correct Answer: C

Explanation: The same indices must be used in numerator and denominator.

16. The slope between (1, 2) and (4, 8) is:

(A) 2/3
(B) 3
(C) 6
(D) 2

Correct Answer: D

Explanation: The slope between (1, 2) and (4, 8) is 2.

17. The slope between (0, 5) and (3, −1) is:

(A) −2
(B) 2
(C) −1/2
(D) 6

Correct Answer: A

Explanation: The slope between (0, 5) and (3, −1) is −2.

18. The slope between (−3, 4) and (1, 4) is:

(A) 1
(B) 0
(C) undefined
(D) 4

Correct Answer: B

Explanation: The y-coordinates are equal, so the line is horizontal and m = 0.

19. The slope between (2, −1) and (2, 7) is:

(A) 4
(B) 0
(C) undefined
(D) 8

Correct Answer: C

Explanation: The x-coordinates are equal, so the line is vertical.

20. A line with 0° < θ < 90° has:

(A) negative gradient
(B) zero gradient only
(C) undefined gradient
(D) positive gradient

Correct Answer: D

Explanation: tan θ is positive in the first quadrant, so the line rises from left to right.

21. A line with 90° < θ < 180° has:

(A) negative gradient
(B) positive gradient
(C) zero gradient
(D) gradient 1

Correct Answer: A

Explanation: tan θ is negative in the second quadrant, so the line falls from left to right.

22. Among y = 2x, y = x and y = (1/3)x, the steepest upward line is:

(A) y = x
(B) y = 2x
(C) y = (1/3)x
(D) they are equally steep

Correct Answer: B

Explanation: Larger positive slope means a steeper rise from left to right.

23. If two non-vertical lines are parallel, then:

(A) m1 m2 = −1
(B) m1 + m2 = 0
(C) m1 = m2
(D) m1 m2 = 1

Correct Answer: C

Explanation: Parallel lines make the same angle with the x-axis, so their slopes are equal.

24. If two non-vertical lines are perpendicular, then:

(A) m1 = m2
(B) m1 + m2 = 1
(C) m1 m2 = 0
(D) m1 m2 = −1

Correct Answer: D

Explanation: The product of the slopes is −1, equivalently each is the negative reciprocal of the other.

25. A line parallel to a line of slope 5 has slope:

(A) 5
(B) −1/5
(C) 1/5
(D) −5

Correct Answer: A

Explanation: Equal slopes are the parallel condition.

26. A line perpendicular to a line of slope 5 has slope:

(A) 5
(B) −1/5
(C) 1/5
(D) −5

Correct Answer: B

Explanation: The negative reciprocal of 5 is −1/5.

27. A line perpendicular to a line of slope −2/3 has slope:

(A) −2/3
(B) 2/3
(C) 3/2
(D) −3/2

Correct Answer: C

Explanation: The negative reciprocal of −2/3 is 3/2.

28. Three points A, B, C are collinear if the slopes of AB, BC and AC are:

(A) negative reciprocals
(B) zero
(C) undefined
(D) equal

Correct Answer: D

Explanation: Three points A, B, C are collinear if the slopes of AB, BC and AC are equal.

29. Slope of AB for A(2, 1) and B(6, 9) is 2. Slope of BC for C(8, 13) is:

(A) 2
(B) 1
(C) 4
(D) 1/2

Correct Answer: A

Explanation: (13 − 9)/(8 − 6) = 4/2 = 2, so A, B, C are collinear.

30. If the slope through (3, k) and (5, 11) is 4, then k equals:

(A) 19
(B) 3
(C) 7
(D) 11

Correct Answer: B

Explanation: If the slope through (3, k) and (5, 11) is 4, then k equals 3.

31. Lines through (k, 1), (4, 7) and (0, 2), (3, 8) are parallel when k equals:

(A) 3
(B) 4
(C) 1
(D) 7

Correct Answer: C

Explanation: First slope (7 − 1)/(4 − k) = 6/(4 − k). Second slope (8 − 2)/(3 − 0) = 2. So 6/(4 − k) = 2 □ 4 − k = 3 □ k = 1.

32. The equation of a line parallel to the x-axis at height b is:

(A) x = b
(B) y = bx
(C) x + y = b
(D) y = b

Correct Answer: D

Explanation: Every point on that line has the same y-coordinate b.

33. The equation of the x-axis is:

(A) y = 0
(B) x = 0
(C) y = x
(D) x + y = 0

Correct Answer: A

Explanation: On the x-axis the ordinate is identically 0.

34. The equation of a line parallel to the y-axis at abscissa a is:

(A) y = a
(B) x = a
(C) x = ay

(D) y = ax

Correct Answer: B

Explanation: Every point on that line has the same x-coordinate a.

35. The equation of the y-axis is:

(A) y = 0
(B) x = 1
(C) x = 0
(D) y = x

Correct Answer: C

Explanation: On the y-axis the abscissa is identically 0.

36. The line y = b lies above the x-axis when:

(A) b < 0
(B) b = 0
(C) b ≠ 1
(D) b > 0

Correct Answer: D

Explanation: The line y = b lies above the x-axis when b > 0.

37. The line x = a lies to the left of the y-axis when:

(A) a < 0
(B) a > 0
(C) a = 0
(D) a ≠ 0

Correct Answer: A

Explanation: The line x = a lies to the left of the y-axis when a < 0.

38. If a line meets the x-axis at (a, 0), then a is the:

(A) y-intercept
(B) x-intercept
(C) slope
(D) inclination

Correct Answer: B

Explanation: The x-intercept is the signed distance from the origin to that intercept point.

39. If a line meets the y-axis at (0, b), then b is the:

(A) x-intercept
(B) run
(C) y-intercept
(D) normal

Correct Answer: C

Explanation: That is the definition of the y-intercept.

40. Slope-intercept form of a non-vertical line is:

(A) x/a + y/b = 1
(B) x cos α + y sin α = p
(C) ax + by = 0 only
(D) y = mx + c

Correct Answer: D

Explanation: m is the slope and c is the y-intercept.

41. If c = 0 in y = mx + c, the line:

(A) passes through the origin
(B) is vertical
(C) is horizontal always

(D) has undefined slope

Correct Answer: A

Explanation: y = mx is the pencil of non-vertical lines through (0, 0).

42. Point-slope form of a line through (x1, y1) with slope m is:

(A) y = mx + x1
(B) y − y1 = m(x − x1)
(C) x/x1 + y/y1 = m
(D) y/y1 = m x/x1

Correct Answer: B

Explanation: The slope between a general point (x, y) and the given point is m.

43. Two-point form through (x1, y1) and (x2, y2) may be written:

(A) (y − y1)/(x − x1) = (x2 − x1)/(y2 − y1)
(B) y/x = y1/x1
(C) (y − y1)/(y2 − y1) = (x − x1)/(x2 − x1)
(D) xy = x1 y1

Correct Answer: C

Explanation: That equates the slope from the first point to (x, y) with the slope of the given segment.

44. Intercept form of a line with intercepts a and b is:

(A) y = ax + b
(B) ax + by = 1
(C) x cos a + y sin b = 1
(D) x/a + y/b = 1

Correct Answer: D

Explanation: Intercept form of a line with intercepts a and b is x/a + y/b = 1.

45. Symmetric form of a line through (x1, y1) with inclination α is:

(A) (x − x1)/cos α = (y − y1)/sin α
(B) y = x tan α
(C) x sin α + y cos α = 1
(D) y − y1 = (x − x1)/tan α

Correct Answer: A

Explanation: It comes from tan α = (y − y1)/(x − x1) rewritten with sine and cosine.

46. Normal form of a line is:

(A) y = mx + c
(B) x cos α + y sin α = p
(C) x/a + y/b = 1
(D) y − y1 = m(x − x1)

Correct Answer: B

Explanation: p is the length of the perpendicular from the origin to the line, and α is that perpendicular's inclination.

47. The line with slope 3 and y-intercept −2 has equation:

(A) y = −2x + 3
(B) 3x + y = 2
(C) y = 3x − 2
(D) x = 3y − 2

Correct Answer: C

Explanation: The line with slope 3 and y-intercept −2 has equation y = 3x − 2.

48. The line through (2, −1) with slope 4 has equation:

(A) y + 1 = 4(x + 2)
(B) y − 1 = 4(x − 2)
(C) y = 4x

(D) y + 1 = 4(x − 2)

Correct Answer: D

Explanation: The line through (2, −1) with slope 4 has equation y + 1 = 4(x − 2).

49. The line through (0, 3) and (6, 0) in intercept form is:

(A) x/6 + y/3 = 1
(B) x/3 + y/6 = 1
(C) x/6 + y/6 = 1
(D) x/3 + y/3 = 1

Correct Answer: A

Explanation: The line through (0, 3) and (6, 0) in intercept form is x/6 + y/3 = 1.

50. The line with slope 5 through (0, 0) is:

(A) x = 5
(B) y = 5x
(C) y = x + 5
(D) 5x + y = 0

Correct Answer: B

Explanation: The line with slope 5 through (0, 0) is y = 5x.

51. A linear equation ax + by + c = 0 represents a straight line provided:

(A) a, b, c are all nonzero
(B) c ≠ 0
(C) a and b are not both zero
(D) a = b

Correct Answer: C

Explanation: A linear equation ax + by + c = 0 represents a straight line provided a and b are not both zero.

52. If a = 0 and b ≠ 0 in ax + by + c = 0, the line is:

(A) vertical
(B) through the origin only
(C) undefined
(D) horizontal (parallel to the x-axis)

Correct Answer: D

Explanation: If a = 0 and b ≠ 0 in ax + by + c = 0, the line is horizontal (parallel to the x-axis).

53. If b = 0 and a ≠ 0 in ax + by + c = 0, the line is:

(A) vertical (parallel to the y-axis)
(B) horizontal
(C) y = x
(D) the x-axis

Correct Answer: A

Explanation: If b = 0 and a ≠ 0 in ax + by + c = 0, the line is vertical (parallel to the y-axis).

54. Slope of ax + by + c = 0 (b ≠ 0) is:

(A) a/b
(B) −a/b
(C) −c/b
(D) c/a

Correct Answer: B

Explanation: Rewriting as y = (−a/b)x + (−c/b) shows m = −a/b.

55. Y-intercept of ax + by + c = 0 (b ≠ 0) is:

(A) −a/b
(B) c/a
(C) −c/b

(D) a/c

Correct Answer: C

Explanation: Y-intercept of ax + by + c = 0 (b ≠ 0) is −c/b.

56. Slope of 2x − 4y + 8 = 0 is:

(A) 2
(B) −1/2
(C) 4
(D) 1/2

Correct Answer: D

Explanation: Slope of 2x − 4y + 8 = 0 is 1/2.

57. Y-intercept of 2x − 4y + 8 = 0 is:

(A) 2
(B) −2
(C) 8
(D) 4

Correct Answer: A

Explanation: Y-intercept of 2x − 4y + 8 = 0 is 2.

58. X-intercept of x + 2y = 6 is:

(A) 2
(B) 6
(C) 3
(D) 0

Correct Answer: B

Explanation: X-intercept of x + 2y = 6 is 6.

59. The angle θ from a line of slope m1 to a line of slope m2 satisfies:

(A) tan θ = (m1 + m2)/(1 − m1 m2)
(B) tan θ = m1 m2
(C) tan θ = (m2 − m1)/(1 + m1 m2)
(D) tan θ = m2/m1

Correct Answer: C

Explanation: It is the tangent subtraction formula with tan α = m2 and tan β = m1.

60. If m1 = m2, then tan θ = 0, so the lines are:

(A) perpendicular
(B) vertical
(C) normal to the origin
(D) parallel (or coincident)

Correct Answer: D

Explanation: Zero tangent means θ = 0°, the parallel case.

61. If 1 + m1 m2 = 0, then tan θ is undefined, so the lines are:

(A) perpendicular
(B) parallel
(C) horizontal
(D) the same line

Correct Answer: A

Explanation: tan 90° is undefined, matching m1 m2 = −1.

62. If m1 = 0 and m2 = 1, then θ equals:

(A) 30°
(B) 45°
(C) 60°

(D) 90°

Correct Answer: B

Explanation: tan θ = (1 − 0)/(1 + 0) = 1, so θ = 45°.

63. If m1 = 1 and m2 = −1, the lines:

(A) are parallel
(B) both pass through (1, −1) only
(C) are perpendicular
(D) have slope 0

Correct Answer: C

Explanation: If m1 = 1 and m2 = −1, the lines are perpendicular.

64. Two non-parallel lines a1x + b1y + c1 = 0 and a2x + b2y + c2 = 0 meet at exactly:

(A) no point
(B) two points
(C) infinitely many points
(D) one point

Correct Answer: D

Explanation: Two non-parallel lines a1x + b1y + c1 = 0 and a2x + b2y + c2 = 0 meet at exactly one point.

65. Those two lines are parallel when:

(A) a1 b2 − a2 b1 = 0 but the lines are not coincident
(B) a1/a2 = b1/b2 = c1/c2
(C) a1 = a2 only
(D) c1 = c2

Correct Answer: A

Explanation: The x, y coefficient determinant vanishing means equal slopes (or both vertical).

66. The intersection of x + y = 5 and x − y = 1 is:

(A) (1, 4)
(B) (3, 2)
(C) (5, 0)
(D) (2, 3)

Correct Answer: B

Explanation: The intersection of x + y = 5 and x − y = 1 is (3, 2).

67. The intersection of x + 2y = 4 and 2x − y = 3 is:

(A) (0, 2)
(B) (4, 0)
(C) (2, 1)
(D) (1, 2)

Correct Answer: C

Explanation: 2(x + 2y) = 8 and 2x − y = 3; subtract after aligning x: from first y = (4 − x)/2. Then 2x − (4 − x)/2 = 3 □ 4x − 4 + x = 6 □ 5x = 10 □ x = 2, y = 1.

68. Infinitely many lines can pass through:

(A) two distinct points
(B) no point
(C) three non-collinear points
(D) a single given point

Correct Answer: D

Explanation: A point does not determine a unique line; a second condition is needed.

69. The family of lines through the intersection of L1 = 0 and L2 = 0 is:

(A) L1 + k L2 = 0
(B) L1 L2 = k

(C) $L_1 = k L_2^2$
(D) $k L_1 = 1$

Correct Answer: A

Explanation: Every value of the parameter k (and the original two lines) gives a line through that common point.

70. A line through the intersection of $x + y = 0$ and $x - y = 2$, and through (1, 1), is found by:

(A) ignoring the given point
(B) substituting (1, 1) into $(x + y) + k(x - y - 2) = 0$ to fix k
(C) taking $k = 0$ always
(D) using only slope 1

Correct Answer: B

Explanation: A line through the intersection of $x + y = 0$ and $x - y = 2$, and through (1, 1), is found by substituting (1, 1) into $(x + y) + k(x - y - 2) = 0$ to fix k.

71. The line through (3, 5) parallel to the x-axis is:

(A) $x = 3$
(B) $y = x + 2$
(C) $y = 5$
(D) $x + y = 8$

Correct Answer: C

Explanation: A horizontal line keeps the y-coordinate of the given point.

72. The line through (3, 5) parallel to the y-axis is:

(A) $y = 5$
(B) $y = 3x$
(C) $x = 5$
(D) $x = 3$

Correct Answer: D

Explanation: A vertical line keeps the x-coordinate of the given point.

73. A line through (1, −2) perpendicular to a line of slope 3 has slope:

(A) $-1/3$
(B) 3
(C) $1/3$
(D) -3

Correct Answer: A

Explanation: Perpendicular slope is the negative reciprocal $-1/3$.

74. A line with y-intercept −4 parallel to slope 2 is:

(A) $y = -4x + 2$
(B) $y = 2x - 4$
(C) $y = -2x - 4$
(D) $x = 2$

Correct Answer: B

Explanation: A line with y-intercept −4 parallel to slope 2 is $y = 2x - 4$.

75. Normal form with $p = 4$ and $\alpha = 0°$ is:

(A) $y = 4$
(B) $x + y = 4$
(C) $x = 4$
(D) $y = x + 4$

Correct Answer: C

Explanation: Normal form with $p = 4$ and $\alpha = 0°$ is $x = 4$.

76. Normal form with $p = 5$ and $\alpha = 90°$ is:

(A) $x = 5$

(B) x + y = 5
(C) y = 5x
(D) y = 5

Correct Answer: D

Explanation: Normal form with p = 5 and α = 90° is y = 5.

77. If a line has x-intercept 4 and y-intercept 4, its slope is:

(A) −1
(B) 1
(C) 4
(D) 0

Correct Answer: A

Explanation: It joins (4, 0) and (0, 4), so m = (4 − 0)/(0 − 4) = −1.

78. Reducing 3x + 6y − 12 = 0 to slope-intercept form gives:

(A) y = 2x − 2
(B) y = −(1/2)x + 2
(C) y = (1/2)x − 2
(D) y = −2x + 2

Correct Answer: B

Explanation: Reducing 3x + 6y − 12 = 0 to slope-intercept form gives y = −(1/2)x + 2.

79. Interior angles of a triangle whose side slopes are known can be found from:

(A) the distance formula only
(B) m1 + m2 + m3 = 180
(C) tan θ = (m2 − m1)/(1 + m1 m2) at each vertex
(D) intercepts only

Correct Answer: C

Explanation: Each vertex angle is the angle between the two sides meeting there; the third angle is 180° minus the other two.

80. In a real linear model p = 7.5 t + 5 for pollution p at time t hours, the gradient 7.5 means:

(A) pollution at midnight is 7.5
(B) time increases by 7.5
(C) the intercept is 7.5
(D) pollution increases by 7.5 units per hour

Correct Answer: D

Explanation: In a real linear model p = 7.5 t + 5 for pollution p at time t hours, the gradient 7.5 means pollution increases by 7.5 units per hour.

B. Less Important / Secondary Topics

81. Gradient is also called:

(A) slope
(B) intercept
(C) origin
(D) locus

Correct Answer: A

Explanation: The chapter uses the two words interchangeably for m = tan θ.

82. A median of a triangle is the segment joining a vertex to the:

(A) incentre
(B) midpoint of the opposite side
(C) orthocentre only
(D) a vertex of another triangle

Correct Answer: B

Explanation: That is the definition used when slopes of medians are required.

83. Slopes are observed from left to right, so a line falling to the right has:

(A) positive slope
(B) undefined slope
(C) negative slope
(D) slope 1

Correct Answer: C

Explanation: The chapter's key fact is that sign is read left-to-right.

84. tan 0° equals:

(A) 1
(B) undefined
(C) √3
(D) 0

Correct Answer: D

Explanation: That is why a horizontal line has slope 0.

85. The general form ax + by + c = 0 can be reduced to intercept form by:

(A) moving c and dividing so the right-hand side is 1
(B) dividing by a only
(C) setting m = 0
(D) taking tan□¹

Correct Answer: A

Explanation: The general form ax + by + c = 0 can be reduced to intercept form by moving c and dividing so the right-hand side is 1.

86. In normal form the sign of the radical is chosen so that p is:

(A) negative
(B) positive
(C) zero
(D) equal to m

Correct Answer: B

Explanation: p is a length, so the constant on the right is taken positive.

87. Two coincident lines have:

(A) no common point
(B) exactly two common points
(C) infinitely many common points
(D) a unique perpendicular

Correct Answer: C

Explanation: Two coincident lines have infinitely many common points.

88. Solution of two parallel distinct lines:

(A) is the origin
(B) is any point on either line
(C) is (1, 1) always
(D) does not exist

Correct Answer: D

Explanation: Solution of two parallel distinct lines does not exist.

89. Family of lines L1 + k L2 = 0 does not include L2 itself unless:

(A) k → ∞ is regarded as giving L2 (finite k recovers the rest of the pencil)
(B) k = 1 always
(C) k = −1 always
(D) k = m

Correct Answer: A

Explanation: Family of lines L1 + k L2 = 0 does not include L2 itself unless k → ∞ is regarded as giving L2 (finite k recovers the rest of the pencil).

90. If a line is written y = 5x − 3, the form is:

(A) two-point
(B) slope-intercept
(C) normal
(D) symmetric

Correct Answer: B

Explanation: If a line is written y = 5x − 3, the form is slope-intercept.

91. x-intercept of x + y = 7 is:

(A) 0
(B) −7
(C) 7
(D) 1

Correct Answer: C

Explanation: x-intercept of x + y = 7 is 7.

92. A line intersecting the axes at (2, 0) and (0, 5) has y-intercept:

(A) 2
(B) −5
(C) 7
(D) 5

Correct Answer: D

Explanation: The y-intercept is the y-coordinate of (0, 5).

93. The lines 2x − y = 0 and 4x − 2y + 6 = 0:

(A) are parallel and distinct
(B) intersect at one point
(C) are perpendicular
(D) are the same line

Correct Answer: A

Explanation: The lines 2x − y = 0 and 4x − 2y + 6 = 0 are parallel and distinct.

94. Point of intersection of 5x = 0 and 3y = 0 is:

(A) (5, 3)
(B) (0, 0)
(C) (1, 1)
(D) (3, 5)

Correct Answer: B

Explanation: x = 0 and y = 0 together are the origin.

95. A hill with rise 3 m and run 12 m has gradient:

(A) 4
(B) 3
(C) 1/4
(D) 12

Correct Answer: C

Explanation: A hill with rise 3 m and run 12 m has gradient 1/4.

96. Inclination of a line with slope 0 is:

(A) 90°
(B) 45°
(C) 180°

(D) 0°

Correct Answer: D

Explanation: Inclination of a line with slope 0 is 0°.

97. If slope of PQ is −4, slope of a perpendicular line is:

(A) 1/4
(B) −4
(C) 4
(D) −1/4

Correct Answer: A

Explanation: If slope of PQ is −4, slope of a perpendicular line is 1/4.

98. Which line has slope 2/3?

(A) 2x + 3y = 0
(B) 2x − 3y = 6
(C) 3x − 2y = 1
(D) 3x + 2y = 0

Correct Answer: B

Explanation: 2x − 3y = 6 — this correctly answers the question.

99. The line y = b is the x-axis itself when:

(A) b > 0
(B) b < 0
(C) b = 0
(D) b = 1

Correct Answer: C

Explanation: The line y = b is the x-axis itself when b = 0.

100. To find the third interior angle of a triangle after two are known, subtract their sum from:

(A) 90°
(B) 360°
(C) 270°
(D) 180°

Correct Answer: D

Explanation: The angle sum in a triangle is 180°.

101. In y = mx + c, increasing |m| makes the line:

(A) steeper
(B) flatter
(C) always horizontal
(D) always vertical

Correct Answer: A

Explanation: In y = mx + c, increasing |m| makes the line steeper.

102. A vertical line cannot be written in slope-intercept form because:

(A) it has y-intercept 0
(B) its slope is undefined
(C) it passes through the origin
(D) c would be infinite always

Correct Answer: B

Explanation: A vertical line cannot be written in slope-intercept form because its slope is undefined.

103. The intercept form x/a + y/b = 1 cannot describe a line through the origin because:

(A) a would equal b
(B) slope would be 1
(C) a line through the origin has both intercepts 0, so division by a or b fails

(D) normal form is required

Correct Answer: C

Explanation: Through the origin both intercepts vanish, so that standard form is unavailable.

104. If two sides of a right triangle lie along y = 0 and x = 0, the right angle is at:

(A) (1, 1)
(B) (1, 0) only
(C) infinity
(D) (0, 0)

Correct Answer: D

Explanation: The axes are perpendicular at the origin.

105. Family of lines of slope 3 may be written:

(A) y = 3x + k for real k
(B) x = 3
(C) y = 3
(D) xy = 3

Correct Answer: A

Explanation: Equal slopes with a free intercept give a parallel family (plus the same slope through every height).

106. The condition a1/a2 = b1/b2 = c1/c2 means the two linear equations:

(A) are perpendicular
(B) represent the same line
(C) have no solution
(D) are vertical

Correct Answer: B

Explanation: The condition a1/a2 = b1/b2 = c1/c2 means the two linear equations represent the same line.

107. A useful check that y = −x + 4 is perpendicular to y = x − 1 is:

(A) intercepts add to 3
(B) they share intercept 4
(C) product of slopes (−1)(1) = −1
(D) both pass through (0, 0)

Correct Answer: C

Explanation: The slope product test is the quick perpendicular check.

108. When interpreting a linear model, the y-intercept is the value of the dependent variable when:

(A) the slope is 1
(B) time is 12
(C) the gradient is 0
(D) the independent variable is 0

Correct Answer: D

Explanation: That is the meaning of c in y = mx + c.