MATHEMATICS MCQ BOOKLET

Grade 9 · Chapter 5 · Linear Equations and Inequalities

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Independent MCQs on linear equations, radical equations, absolute value, and linear inequalities. 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. A linear equation in one variable can be written in the standard form:

(A) $ax + b = 0$ with $a \neq 0$
(B) $ax^2 + b = 0$ with $a \neq 0$
(C) $ax + b > 0$
(D) $xy = 1$

Correct Answer: A

Explanation: Degree one in a single unknown is the defining shape $ax + b = 0$.

2. The exponent of the variable in a linear equation is:

(A) 2
(B) 1
(C) 0
(D) −1

Correct Answer: B

Explanation: If the highest power of the unknown is 1, the.

3. Which equation is linear in one variable?

(A) $2x^2 + 3 = 0$
(B) $xy + 1 = 0$
(C) $4x - 7 = 0$
(D) $x + y = 5$

Correct Answer: C

Explanation: $4x - 7 = 0$ — this correctly answers the question.

4. $x^2 = 9$ is not linear because:

(A) it has no solution
(B) 9 is even
(C) it uses an equal sign
(D) the exponent of x is 2

Correct Answer: D

Explanation: $x^2 = 9$ is not linear because the exponent of x is 2.

5. $xy = 12$ is not linear because it involves a:

(A) product of two variables
(B) sum of constants
(C) negative sign
(D) fraction

Correct Answer: A

Explanation: The product xy has total degree 2, which matches the chapter rule being tested.

6. A linear equation in one variable, written in standard form, has:

(A) no solution
(B) exactly one solution
(C) exactly two solutions
(D) infinitely many solutions always

Correct Answer: B

Explanation: Isolating x gives a single replacement that makes ax + b = 0 true.

7. Two equations with the same solution set are called:

(A) quadratic equations
(B) strict inequalities
(C) equivalent equations
(D) extraneous roots

Correct Answer: C

Explanation: Two equations with the same solution set are called equivalent equations.

8. The solution of 5x − 8 = 12 is:

(A) x = 4/5
(B) x = 20
(C) x = −4
(D) x = 4

Correct Answer: D

Explanation: 5x = 20, so x = 4, which matches the chapter rule being tested.

9. The solution of −6x + 18 = 0 is:

(A) x = 3
(B) x = 18
(C) x = −3
(D) x = 0

Correct Answer: A

Explanation: −6x = −18, so x = 3, which matches the chapter rule being tested.

10. The solution of 3(x − 2) = 15 is:

(A) x = 3
(B) x = 7
(C) x = 5
(D) x = 13

Correct Answer: B

Explanation: x − 2 = 5, so x = 7, which matches the chapter rule being tested.

11. The solution of 4x + 9 = 25 is:

(A) x = 25
(B) x = 16
(C) x = 4
(D) x = 9/4

Correct Answer: C

Explanation: 4x = 16, so x = 4, which matches the chapter rule being tested.

12. To clear denominators in an equation with fractions, multiply every term by the:

(A) HCF of the numerators
(B) largest numerator
(C) degree of x
(D) LCM of the denominators

Correct Answer: D

Explanation: To clear denominators in an equation with fractions, multiply every term by the LCM of the denominators.

13. The solution of x/2 + 3 = 7 is:

(A) x = 8
(B) x = 2
(C) x = 10

(D) x = 4

Correct Answer: A

Explanation: x/2 = 4, so x = 8, which matches the chapter rule being tested.

14. The solution of 3x/4 − 1/2 = 1 is:

(A) x = 1
(B) x = 2
(C) x = 4
(D) x = 6

Correct Answer: B

Explanation: Multiply by 4: 3x − 2 = 4, so 3x = 6 and x = 2.

15. The solution of (2x + 1)/3 = (x − 1)/2 is:

(A) x = 1
(B) x = 5
(C) x = −5
(D) x = 0

Correct Answer: C

Explanation: Cross-multiply: 2(2x + 1) = 3(x − 1) gives 4x + 2 = 3x − 3, so x = −5.

16. The solution of (x + 3)/5 = (2x − 1)/3 is:

(A) x = 1
(B) x = 3
(C) x = −2
(D) x = 2

Correct Answer: D

Explanation: 3(x + 3) = 5(2x − 1) gives 3x + 9 = 10x − 5, so 14 = 7x and x = 2.

17. The solution of 0.5x − 0.2 = 1.3 is:

(A) x = 3
(B) x = 1
(C) x = 2.6
(D) x = 0.5

Correct Answer: A

Explanation: 0.5x = 1.5, so x = 3, which matches the chapter rule being tested.

18. The solution of 0.4(x + 5) = 2.4 is:

(A) x = 6
(B) x = 1
(C) x = 2.4
(D) x = 0.4

Correct Answer: B

Explanation: x + 5 = 2.4 / 0.4 = 6, so x = 1, which matches the chapter rule being tested.

19. The solution of 2(3x − 1) = 16 is:

(A) x = 16
(B) x = 8
(C) x = 3
(D) x = 2

Correct Answer: C

Explanation: 3x − 1 = 8, so 3x = 9 and x = 3, which matches the chapter rule being tested.

20. The solution of 7x + 5 = 5x + 17 is:

(A) x = 17
(B) x = 12
(C) x = 2

(D) x = 6

Correct Answer: D

Explanation: 2x = 12, so x = 6, which matches the chapter rule being tested.

21. The solution of x/3 + x/6 = 4 is:

(A) x = 8
(B) x = 4
(C) x = 12
(D) x = 6

Correct Answer: A

Explanation: Common denominator 6: 2x + x = 24, so 3x = 24 and x = 8.

22. The solution of (4x − 3)/5 = 1 is:

(A) x = 1
(B) x = 2
(C) x = 8
(D) x = 5

Correct Answer: B

Explanation: 4x − 3 = 5, so 4x = 8 and x = 2, which matches the chapter rule being tested.

23. The solution of 0.7x + 0.3 = 1.7 is:

(A) x = 1
(B) x = 0.7
(C) x = 2
(D) x = 1.4

Correct Answer: C

Explanation: 0.7x = 1.4, so x = 2, which matches the chapter rule being tested.

24. The solution of 5 − 2x = 11 is:

(A) x = 8
(B) x = 3
(C) x = −8
(D) x = −3

Correct Answer: D

Explanation: −2x = 6, so x = −3, which matches the chapter rule being tested.

25. The solution of 8 − 3x = x + 4 is:

(A) x = 1
(B) x = 4
(C) x = 12
(D) x = −1

Correct Answer: A

Explanation: 8 − 4 = 4x, so 4 = 4x and x = 1, which matches the chapter rule being tested.

26. The solution of 9x = 3 is:

(A) x = 3
(B) x = 1/3
(C) x = 27
(D) x = −3

Correct Answer: B

Explanation: Divide both sides by 9 to get x = 1/3, which matches the chapter rule being tested.

27. The solution of −x = 8 is:

(A) x = 8
(B) x = 0
(C) x = −8

(D) x = 1

Correct Answer: C

Explanation: Multiply both sides by −1, so x = −8, which matches the chapter rule being tested.

28. The solution of 0.3x = 1.2 is:

(A) x = 0.4
(B) x = 1.5
(C) x = 0.9
(D) x = 4

Correct Answer: D

Explanation: x = 1.2 / 0.3 = 4, which matches the chapter rule being tested.

29. Solving a linear equation uses the addition, subtraction, multiplication, and division:

(A) properties of equality
(B) properties of inequality only
(C) trigonometric identities
(D) factor theorems

Correct Answer: A

Explanation: Solving a linear equation uses the addition, subtraction, multiplication, and division properties of equality.

30. After finding a candidate root, a reliable check is to:

(A) ignore the original equation
(B) substitute it back into the original equation
(C) square both sides again
(D) change the sign of the root

Correct Answer: B

Explanation: A true numerical identity confirms that the replacement is a root.

31. An equation in which the unknown appears under a radical sign is called a:

(A) linear inequality
(B) bearing
(C) radical equation
(D) quadrantal angle

Correct Answer: C

Explanation: The variable sits inside a root, so the.

32. The usual first algebraic step for a radical equation is to:

(A) divide by the radical
(B) take HCF of both sides
(C) convert to radians
(D) isolate the radical, then square both sides

Correct Answer: D

Explanation: The usual first algebraic step for a radical equation is to isolate the radical, then square both sides.

33. Squaring both sides of a radical equation can introduce:

(A) an extraneous root that fails the original equation
(B) no extra solutions ever
(C) a bearing
(D) a cubic factor

Correct Answer: A

Explanation: If a = b then $a^2 = b^2$, but equal squares need not come from equal numbers.

34. If an isolated square-root term equals a negative number, the real solution set is:

(A) all real numbers
(B) the empty set

(C) {0}
(D) {1}

Correct Answer: B

Explanation: A principal square root is never negative.

35. If x = y then $x^2 = y^2$; if $x^2 = y^2$, then x and y:

(A) must be equal
(B) must both be zero
(C) may or may not be equal
(D) must both be positive

Correct Answer: C

Explanation: Counter-example: $(-5)^2 = 5^2$ but $-5 \neq 5$, which matches the chapter rule being tested.

36. The solution of $\sqrt{(x - 1)} = 4$ is:

(A) x = 4
(B) x = 15
(C) x = 5
(D) x = 17

Correct Answer: D

Explanation: Square: $x - 1 = 16$, so $x = 17$, and $\sqrt{16} + 0$ checks.

37. The solution of $\sqrt{(2x + 3)} = 5$ is:

(A) x = 11
(B) x = 5
(C) x = 22
(D) x = 1

Correct Answer: A

Explanation: $2x + 3 = 25$, so $2x = 22$ and $x = 11$, which matches the chapter rule being tested.

38. The solution of $\sqrt{x} = 9$ is:

(A) x = 9
(B) x = 81
(C) x = 3
(D) x = 18

Correct Answer: B

Explanation: Square both sides: $x = 81$, and $\sqrt{81} = 9$, which matches the chapter rule being tested.

39. The solution of $\sqrt{(x + 5)} - 2 = 3$ is:

(A) x = 3
(B) x = 4
(C) x = 20
(D) x = 11

Correct Answer: C

Explanation: $\sqrt{(x + 5)} = 5$, so $x + 5 = 25$ and $x = 20$, which matches the chapter rule being tested.

40. The solution of $7 - \sqrt{(3x)} = 1$ is:

(A) x = 6
(B) x = 36
(C) x = 2
(D) x = 12

Correct Answer: D

Explanation: $\sqrt{(3x)} = 6$, so $3x = 36$ and $x = 12$, which matches the chapter rule being tested.

41. The real solution set of $\sqrt{(5x)} = -2$ is:

(A) the empty set
(B) {4/5}

(C) {−2}
(D) {0}

Correct Answer: A

Explanation: The real solution set of √(5x) = −2 is the empty set.

42. The real solution set of 4 + √(2y + 1) = 3 is:

(A) {−1/2}
(B) the empty set
(C) {3}
(D) {0}

Correct Answer: B

Explanation: Isolating gives √(2y + 1) = −1, which is impossible in the reals.

43. The solution of √(3x − 2) = √(x + 4) is:

(A) x = 1
(B) x = 6
(C) x = 3
(D) x = −4

Correct Answer: C

Explanation: 3x − 2 = x + 4, so 2x = 6 and x = 3; both sides equal √7.

44. The solution of √(x − 3) = 2 is:

(A) x = 2
(B) x = 5
(C) x = 1
(D) x = 7

Correct Answer: D

Explanation: x − 3 = 4, so x = 7, which matches the chapter rule being tested.

45. A candidate that appears after squaring but fails the original radical equation is called:

(A) an extraneous root
(B) the HCF
(C) a bearing
(D) a linear factor

Correct Answer: A

Explanation: It is extra algebraic debris created by squaring.

46. The absolute value |x| is the:

(A) opposite of x always
(B) distance of x from 0 on the number line
(C) square of x
(D) reciprocal of x

Correct Answer: B

Explanation: Distance is never negative, so |x| ≥ 0, which matches the chapter rule being tested.

47. By definition, |x| = x when x ≥ 0, and |x| equals:

(A) x when x < 0
(B) 0 when x < 0
(C) −x when x < 0
(D) 1 when x < 0

Correct Answer: C

Explanation: By definition, |x| = x when x ≥ 0, and |x| equals −x when x < 0.

48. If k > 0, the equation |x| = k has:

(A) no solution
(B) one solution only

(C) infinitely many solutions
(D) two solutions, k and −k

Correct Answer: D

Explanation: Two points on the number line lie at distance k from 0.

49. If k = 0, the equation |x| = k has:

(A) exactly one solution, x = 0
(B) two solutions
(C) no solution
(D) all real x

Correct Answer: A

Explanation: Only 0 is at distance 0 from the origin.

50. If k < 0, the equation |x| = k has:

(A) two solutions
(B) no real solution
(C) x = k
(D) x = −k

Correct Answer: B

Explanation: If k < 0, the equation |x| = k has no real solution.

51. The equation |ax + b| = c with a ≠ 0 and c > 0 is equivalent to:

(A) ax + b = c only
(B) ax + b = 0 only
(C) ax + b = c or ax + b = −c
(D) a = c

Correct Answer: C

Explanation: The expression inside can be c or its opposite.

52. The solution set of |x| = 7 is:

(A) {7}
(B) {0}
(C) empty
(D) {−7, 7}

Correct Answer: D

Explanation: Both 7 and −7 have absolute value 7, which matches the chapter rule being tested.

53. The solution set of |x + 4| = 6 is:

(A) {2, −10}
(B) {2}
(C) {−4}
(D) {6, −6}

Correct Answer: A

Explanation: x + 4 = 6 or x + 4 = −6, so x = 2 or x = −10.

54. The solution set of |2x − 3| = 9 is:

(A) {6}
(B) {6, −3}
(C) {3}
(D) {9, −9}

Correct Answer: B

Explanation: 2x − 3 = 9 or 2x − 3 = −9, so x = 6 or x = −3.

55. The solution of |3x + 1| = 0 is:

(A) x = 0
(B) x = 1/3

(C) x = −1/3
(D) no solution

Correct Answer: C

Explanation: Absolute value is 0 only when the inside is 0, so 3x + 1 = 0.

56. The solution set of 4|x| = 20 is:

(A) {5}
(B) {20}
(C) {4}
(D) {−5, 5}

Correct Answer: D

Explanation: |x| = 5, so x = ±5, which matches the chapter rule being tested.

57. The real solution set of |x| + 8 = 3 is:

(A) the empty set
(B) {−5, 5}
(C) {−8}
(D) {3}

Correct Answer: A

Explanation: |x| = −5 is impossible, which matches the chapter rule being tested.

58. The solutions of |x − 2| = |2x + 1| are:

(A) x = 2 only
(B) x = −3 and x = 1/3
(C) x = 0
(D) x = 1

Correct Answer: B

Explanation: The solutions of |x − 2| = |2x + 1| are x = −3 and x = 1/3.

59. The identity |ab| equals:

(A) |a| + |b|
(B) |a| − |b|
(C) |a| · |b|
(D) a + b

Correct Answer: C

Explanation: Absolute value of a product is the product of the absolute values.

60. The identity |a/b| with b ≠ 0 equals:

(A) |a| · |b|
(B) |a| + |b|
(C) a/b without bars
(D) |a| / |b|

Correct Answer: D

Explanation: Absolute value of a quotient is the quotient of the absolute values.

61. |a| + |a| simplifies to:

(A) 2|a|
(B) 0
(C) $|2a^2|$
(D) a

Correct Answer: A

Explanation: |a| + |a| simplifies to 2|a|.

62. A statement that two algebraic expressions are not equal is called an:

(A) identity always
(B) inequality (inequation)

(C) absolute value
(D) arc length

Correct Answer: B

Explanation: The relation uses <, >, ≤, ≥, or ≠ rather than a lone equals sign.

63. A linear inequality in one variable can be written in a form such as:

(A) $ax^2 + b < 0$
(B) $xy < 1$
(C) $ax + b < 0$ with $a \neq 0$
(D) $x^2 = 4$

Correct Answer: C

Explanation: A linear inequality in one variable can be written in a form such as $ax + b < 0$ with $a \neq 0$.

64. An inequality that uses < or > (but not ≤ or ≥) is called:

(A) an equation
(B) an identity
(C) a radical
(D) a strict inequality

Correct Answer: D

Explanation: Strict means the two sides are forbidden to be equal.

65. Trichotomy for real numbers a and b says that exactly one of these holds:

(A) $a < b$ or $a = b$ or $a > b$
(B) $a < b$ only always
(C) $a \leq b$ always
(D) $a + b = 0$

Correct Answer: A

Explanation: Two reals are comparable in exactly one of those three ways.

66. Transitivity of < says that if a < b and b < c, then:

(A) $c < a$
(B) $a < c$
(C) $a = c$
(D) $a + c = b$

Correct Answer: B

Explanation: Transitivity of < says that if $a < b$ and $b < c$, then $a < c$.

67. The additive property of inequalities says that if a < b then:

(A) $a - c > b - c$ always
(B) $ac < bc$ for every c
(C) $a + c < b + c$
(D) $a = b + c$

Correct Answer: C

Explanation: The additive property of inequalities says that if $a < b$ then $a + c < b + c$.

68. If a < b and c > 0, then:

(A) $ac > bc$
(B) $ac = 0$
(C) $a + c > b + c$ always
(D) $ac < bc$

Correct Answer: D

Explanation: If $a < b$ and $c > 0$, then $ac < bc$.

69. If a < b and c < 0, then:

(A) $ac > bc$
(B) $ac < bc$

(C) ac = bc
(D) c must be zero

Correct Answer: A

Explanation: If a < b and c < 0, then ac > bc.

70. When both sides of an inequality are multiplied or divided by a negative number, the inequality symbol:

(A) stays the same
(B) is reversed
(C) becomes an equal sign
(D) is deleted

Correct Answer: B

Explanation: That reversal is the one essential difference from solving.

71. The solution of 8x + 9 < 6x − 7 is:

(A) x < 8
(B) x > −8
(C) x < −8
(D) x = −8

Correct Answer: C

Explanation: 2x < −16, so x < −8, which matches the chapter rule being tested.

72. The solution of −3x > 12 is:

(A) x > −4
(B) x > 4
(C) x < 4
(D) x < −4

Correct Answer: D

Explanation: Divide by −3 and reverse: x < −4, which matches the chapter rule being tested.

73. The solution of 2x − 5 ≥ 7 is:

(A) x ≥ 6
(B) x ≥ 1
(C) x ≤ 6
(D) x = 6 only

Correct Answer: A

Explanation: 2x ≥ 12, so x ≥ 6, which matches the chapter rule being tested.

74. The solution of x/2 + 1 ≤ 4 is:

(A) x ≤ 3
(B) x ≤ 6
(C) x ≥ 6
(D) x = 8

Correct Answer: B

Explanation: x/2 ≤ 3, so x ≤ 6, which matches the chapter rule being tested.

75. A compound inequality joined by “or” has solution set equal to the:

(A) intersection of the two sets
(B) empty set always
(C) union of the two solution sets
(D) HCF of the sets

Correct Answer: C

Explanation: “Or” is true when at least one part is true.

76. A compound inequality joined by “and” has solution set equal to the:

(A) union of the two sets

(B) whole real line always
(C) set {0}
(D) intersection of the two solution sets

Correct Answer: D

Explanation: A compound inequality joined by "and" has solution set equal to the intersection of the two solution sets.

77. The solution of −2 < 3x + 1 < 7 is:

(A) −1 < x < 2
(B) −2 < x < 1
(C) x < −1
(D) x > 2

Correct Answer: A

Explanation: The solution of −2 < 3x + 1 < 7 is −1 < x < 2.

78. The solution set of an inequality is the set of all replacements that make it:

(A) false
(B) true
(C) undefined
(D) quadratic

Correct Answer: B

Explanation: Those replacements are the solutions, which matches the chapter rule being tested.

79. Two inequalities with the same solution set are called:

(A) strict equations
(B) extraneous inequalities
(C) equivalent inequalities
(D) bearings

Correct Answer: C

Explanation: Two inequalities with the same solution set are called equivalent inequalities.

80. The compact form −1 ≤ x ≤ 4 means:

(A) x ≤ −1 or x ≥ 4
(B) x = −1 only
(C) x > 4
(D) x ≥ −1 and x ≤ 4

Correct Answer: D

Explanation: The compact chain is an "and" compound inequality.

B. Less Important / Secondary Topics

81. Equations and formulae are used in this unit as models of:

(A) real-life problems in science, business, and sport
(B) only poetry metre
(C) only compass roses
(D) only cube identities

Correct Answer: A

Explanation: Equations and formulae are used in this unit as models of real-life problems in science, business, and sport.

82. For any two real scores x and y, trichotomy says that exactly one of x < y, x = y, or:

(A) x + y = 0
(B) x > y
(C) xy = 1
(D) $x^2 = y$

Correct Answer: B

Explanation: For any two real scores x and y, trichotomy says that exactly one of x < y, x = y, or x > y.

83. A useful habit while checking a possible root is to treat the substituted equality as:

(A) already proved
(B) always false
(C) still on trial until both sides match
(D) a bearing

Correct Answer: C

Explanation: The check is a verification, not an assumption.

84. Cross-multiplication is valid for an equation of two fractions because it is the same as multiplying both sides by the:

(A) HCF of the numerators
(B) square of x
(C) absolute value
(D) product of the two denominators

Correct Answer: D

Explanation: That product clears both denominators, which matches the chapter rule being tested.

85. |5| and |−5| are equal because both numbers lie:

(A) 5 units from 0
(B) on opposite sides of 10
(C) at the origin
(D) in quadrant II

Correct Answer: A

Explanation: |5| and |−5| are equal because both numbers lie 5 units from 0.

86. The symbols < and > for inequalities were introduced in the 1600s by:

(A) Euclid only
(B) Thomas Harriot
(C) Ansel Adams
(D) a GPS satellite

Correct Answer: B

Explanation: The symbols < and > for inequalities were introduced in the 1600s by Thomas Harriot.

87. If an inequality is solved over the integers rather than the reals, the solution set:

(A) never changes
(B) becomes empty always
(C) contains only the integer members of the real solution
(D) becomes all reals

Correct Answer: C

Explanation: The same inequality is restricted to Z, so non-integers drop out.

88. Two inequalities such as −6 < 5x + 3 and 5x + 3 < 5 can be written compactly as:

(A) −6 < 5x + 3 or 5x + 3 < 5
(B) 5x + 3 = −6
(C) x = 5
(D) −6 < 5x + 3 < 5

Correct Answer: D

Explanation: Two inequalities such as −6 < 5x + 3 and 5x + 3 < 5 can be written compactly as −6 < 5x + 3 < 5.

89. There is no equally short compact chain for a compound inequality joined by:

(A) or
(B) and
(C) ≤
(D) ≥

Correct Answer: A

Explanation: There is no equally short compact chain for a compound inequality joined by or.

90. If 4 < 2x + 1 < 10, then x lies between:

(A) 4 and 10
(B) 1.5 and 4.5
(C) 2 and 5
(D) 0 and 1

Correct Answer: B

Explanation: If 4 < 2x + 1 < 10, then x lies between 1.5 and 4.5.

91. The symbol ≠ is read:

(A) is less than
(B) is a bearing of
(C) is not equal to
(D) is the HCF of

Correct Answer: C

Explanation: It is the inequality that simply denies equality.

92. −5 < 7 is an example of the relation:

(A) greater than
(B) absolute value
(C) parallel
(D) less than

Correct Answer: D

Explanation: The smaller number is written on the left of <.

93. 7 ≤ 7 is true because:

(A) equality is allowed by ≤
(B) 7 < 7
(C) 7 > 7
(D) 7 is negative

Correct Answer: A

Explanation: Less-than-or-equal holds when the two sides are equal.

94. 5 ≥ 1 is true because:

(A) 5 = 1
(B) 5 > 1, which is allowed by ≥
(C) 1 > 5
(D) they are opposites

Correct Answer: B

Explanation: Greater-than-or-equal holds whenever the left side is larger.

95. When clearing 1/2 x + 3 ≥ 1/4 x + 2, a convenient first multiplier is:

(A) 3
(B) 1/4
(C) 4, the LCM of 2 and 4
(D) x

Correct Answer: C

Explanation: When clearing 1/2 x + 3 ≥ 1/4 x + 2, a convenient first multiplier is 4, the LCM of 2 and 4.

96. The solution of 3(−4 + 5y) ≤ −8(1 − 2y) + 6 is:

(A) y ≤ −10
(B) y = 0
(C) y < 3
(D) y ≥ −10

Correct Answer: D

Explanation: Expand: $-12 + 15y \le -8 + 16y + 6$, so $-12 + 15y \le 16y - 2$, hence $-y \le 10$ and $y \ge -10$.

97. A compound inequality is two simple inequalities connected by:

(A) the words and or or
(B) sine or cosine
(C) HCF or LCM
(D) degrees or radians

Correct Answer: A

Explanation: A compound inequality is two simple inequalities connected by the words and or or.

98. A compound "or" statement is true if:

(A) both parts are false
(B) at least one of its inequalities is true
(C) the intersection is empty
(D) x = 0

Correct Answer: B

Explanation: Union needs only one successful side, which matches the chapter rule being tested.

99. A compound "and" statement is true only if:

(A) one part is true
(B) x is negative
(C) both individual inequalities are true
(D) the union is all reals

Correct Answer: C

Explanation: A compound "and" statement is true only if both individual inequalities are true.

100. The empty set is the correct solution when a check shows that every candidate is:

(A) positive
(B) an integer
(C) less than 10
(D) extraneous or impossible

Correct Answer: D

Explanation: The empty set is the correct solution when a check shows that every candidate is extraneous or impossible.

101. Which is the standard form of a linear equation among these?

(A) $ax + b = 0$
(B) $ax + b > 0$
(C) $ax^2 + b = 0$
(D) $ax + b = -c$ written without moving $-c$

Correct Answer: A

Explanation: The unit takes $ax + b = 0$ as the standard linear form.

102. The solution of $3x + 5 = 14$ is:

(A) x = 14
(B) x = 3
(C) x = 19
(D) x = 9

Correct Answer: B

Explanation: $3x = 9$, so $x = 3$, which matches the chapter rule being tested.

103. To solve $-2x = 2/5$ one mainly uses the:

(A) addition property only
(B) trichotomy
(C) division (or multiplication) property of equality

(D) arc-length formula

Correct Answer: C

Explanation: To solve −2x = 2/5 one mainly uses the division (or multiplication) property of equality.

104. The solution set of 5|x| = 25 is:

(A) {25, −25}
(B) {5}
(C) {}
(D) {−5, 5}

Correct Answer: D

Explanation: |x| = 5, so x = ±5, which matches the chapter rule being tested.

105. The solution set of √(3x + 1) = 5 is:

(A) {8}
(B) {5}
(C) {24}
(D) {25}

Correct Answer: A

Explanation: 3x + 1 = 25, so 3x = 24 and x = 8; √25 = 5 checks.

106. Linear equations with rational coefficients are still linear provided the variable appears to power:

(A) 2
(B) 1
(C) 1/2 only
(D) 0

Correct Answer: B

Explanation: Linear equations with rational coefficients are still linear provided the variable appears to power 1.

107. Dividing 2x < −16 by 2 (a positive number) gives:

(A) x > −8
(B) x < 8
(C) x < −8
(D) x > 8

Correct Answer: C

Explanation: Dividing 2x < −16 by 2 (a positive number) gives x < −8.

108. The number that must be subtracted from the right side of 5x = 22 so that x = 4 becomes a root is:

(A) 0
(B) 4
(C) 22
(D) 2

Correct Answer: D

Explanation: If x = 4 then the left side is 20, so subtract 2 from 22 to match.