Unit 4: Linear and Quadratic Inequalities

SSC-II Mathematics (Federal Board, National Book Foundation) | 35 MCQs

Choose the correct answer. The correct option is shown in **bold**. Each question carries one mark.

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1. The statement "x is at least 5" is written as

A. $x < 5$ **B. $x \geq 5$**
C. $x \leq 5$ D. $x > 5$

2. The statement "x is at most 7" is written as

A. $x < 7$ B. $x > 7$
C. $x \leq 7$ D. $x \geq 7$

3. The statement "x is not less than 5" is written as

A. $x \geq 5$ B. $x \leq 5$
C. $x < 5$ D. $x > 5$

4. If $a < b$, then $a + c$ is

A. greater than $b + c$ B. greater than or equal to $b + c$
C. equal to $b + c$ **D. less than $b + c$**

5. If $a < b$ and $c > 0$, then

A. $ac = bc$ B. $a/c > b/c$
C. $ac < bc$ D. $ac > bc$

6. When both sides of an inequality are multiplied by a negative number, the inequality sign

A. is reversed B. remains the same
C. becomes equality D. is removed

7. The solution of $2x + 3 < 7$ is

A. $x > 2$ B. $x > 5$
C. $x < 5$ **D. $x < 2$**

8. The solution of $-3x > 9$ is

A. $x > -3$ **B. $x < -3$**
C. $x > 3$ D. $x < 3$

9. The solution of $5x - 2 \geq 8$ is

A. $x \geq 2$ B. $x \leq 6/5$
C. $x \leq 2$ D. $x \geq 6/5$

10. The solution of $3x + 4 \leq 10$ is

A. $x \geq 14/3$ B. $x \leq 14/3$
C. $x \geq 2$ **D. $x \leq 2$**

11. The solution of $x - 7 < -2$ is

A. $x < -9$ B. $x > -9$
C. $x < 5$ D. $x > 5$

12. The solution of $2x + 5 > 1$ is

A. $x < 3$ **B. $x > -2$**

C. $x < -2$ D. $x > 3$

13. The solution of $x/2 + 1 \geq 3$ is

A. $x \geq 2$ B. $x \leq 4$

C. $x \leq 2$ **D. $x \geq 4$**

14. The solution of $3(x - 1) < 2x + 1$ is

A. $x > 2$ B. $x < 2$

C. $x < 4$ D. $x > 4$

15. The smallest integer satisfying $x > 2.5$ is

A. 3 B. 4

C. 2.5 D. 2

16. The largest integer satisfying $2x < 9$ is

A. 4.5 **B. 4**

C. 5 D. 3

17. On a number line, the solution $x \geq 3$ is shown by

A. an open circle at 3 with shading to the right B. a closed circle at 3 with shading to the left

C. a closed circle at 3 with shading to the right D. an open circle at 3 with shading to the left

18. The solution of $x^2 - 4 < 0$ is

A. $x > -2$ B. $x < 2$

C. $x < -2$ or $x > 2$ **D. $-2 < x < 2$**

19. The solution of $x^2 - 9 > 0$ is

A. $x < -3$ or $x > 3$ B. $-3 < x < 3$

C. $x < -3$ D. $x > 3$

20. The solution of $x^2 - 5x + 6 \leq 0$ is

A. $x \leq 2$ or $x \geq 3$ **B. $2 \leq x \leq 3$**

C. $x \geq 3$ D. $x \leq 2$

21. The solution of $x^2 - 5x + 6 > 0$ is

A. $x < 2$ only B. $2 < x < 3$

C. $x > 3$ only **D. $x < 2$ or $x > 3$**

22. The solution of $(x - 1)(x + 2) < 0$ is

A. $x < -2$ or $x > 1$ B. $-1 < x < 2$

C. $-2 < x < 1$ D. $x < -1$ or $x > 2$

23. The solution of $(x - 1)(x + 2) > 0$ is

A. $x < -2$ or $x > 1$ B. $-1 < x < 2$

C. $-2 < x < 1$ D. $x < -1$ or $x > 2$

24. The solution of $x^2 - x - 6 \leq 0$ is

A. $x \leq -2$ or $x \geq 3$ **B. $-2 \leq x \leq 3$**

C. $x \leq -3$ or $x \geq 2$ D. $-3 \leq x \leq 2$

25. The solution set of $x^2 + 1 > 0$ is

A. all real numbers B. $x > 0$

C. $x > 1$ D. the empty set

26. The solution of $(x - 3)^2 \leq 0$ is

A. no real number B. all real numbers

C. $x \leq 3$ **D. x = 3 only**

27. The boundary line of the inequality $x + y \leq 4$ is drawn as a

A. parabola **B. solid line**

C. curve D. dotted line

28. The boundary line of the inequality $x + y < 4$ is drawn as a

A. solid line B. pair of lines

C. dotted (broken) line D. thick curve

29. To decide which side of the line $ax + by = c$ to shade, we commonly test the point

A. (c, c) **B. (0, 0)**

C. (1, 1) D. (a, b)

30. The point (0, 0) lies in the region of $x + y < 4$ because

A. $0 = 4$ B. $0 < 0$ is true

C. $0 > 4$ is true **D. $0 < 4$ is true**

31. The region represented by $y \geq 0$ lies

A. on or above the x-axis B. to the left of the y-axis

C. below the x-axis D. to the right of the y-axis

32. The region represented by $x > 0$ lies

A. above the x-axis B. below the x-axis

C. to the right of the y-axis D. to the left of the y-axis

33. Which point satisfies both $x + y > 3$ and $x - y < 1$?

A. (0, 0) B. (5, 1)

C. (3, 0) **D. (2, 2)**

34. The feasible region of two linear inequalities is the region

A. satisfying only the first inequality **B. satisfying both inequalities at the same time**

C. common to the two axes only D. lying outside both boundary lines

35. The solution of the combined inequality $x > -1$ and $x < 3$ is

A. $-1 < x < 3$ B. $x < -1$

C. $x > 3$ D. $x < -1$ or $x > 3$