



MATHS

BOOKS - NEW JYOTHI MATHS (TAMIL ENGLISH)

LINEAR INEQUALITIES

Examples

1. Solve $24x < 100$, when x is a natural number.



[Watch Video Solution](#)

2. Solve the inequality $3x+5 < x-7$, when x is a real number.



[Watch Video Solution](#)

3. Solve $5x - 3 < 17$ when x is a real number



[Watch Video Solution](#)

4. Solve $-4x > 30$ when (i) $x \in Z$ (ii) $x \in N$



[Watch Video Solution](#)

5. Solve the inequality $3(x - 145) \leq 2(x - 3)$



[Watch Video Solution](#)

6. Solve the inequality

$2(2x + 3) - 10 < 6(x - 2)$, when x is a real number.



Watch Video Solution

7. Solve the inequality $2 - 3x \geq 2(x + 6)$,
when x is a real number.



Watch Video Solution

8. Solve the inequality $\frac{5x}{2} + \frac{3x}{4} \geq \frac{39}{4}$, when
 x is a real number.



Watch Video Solution

9. Solve the inequality $\frac{3x - 4}{2} \geq \frac{x + 1}{4} - 1$.



[Watch Video Solution](#)

10. Find all pairs of consecutive even positive integers, both of which are larger than 5 such that their sum is less than 23.



[Watch Video Solution](#)

11. In an experiment, a solution of hydrochloric acid is kept between 30° and 35° Celsius.

What is the range of temperature in degree Fahrenheit.

[The conversion of temperature in Fahrenheit (F) to temperature in degree Celsius (C) is given by $C = \frac{5}{9}(F - 32)$.



[Watch Video Solution](#)

12. The longest side of a triangle is 3 times the shortest side and the third side is 2 cm shorter than the longest side. If the perimeter of the

triangle is at least 61 cm, find the minimum length of the shortest side.



[Watch Video Solution](#)

13. Solve $-5 \leq \frac{5 - 3x}{2} \leq 8$.



[Watch Video Solution](#)

14. To receive Grade A in a course , one must obtain an averager of 90 marks or more in five examinations (each Of 100 marks). If sunita 's

marks in first four examinations are 87, 92, 94 and 95, find minimum marks that Sunita must obtain in fifth examination to get Grade 'A' in the course.



[Watch Video Solution](#)

15. Arathi took 3 examinations in a year. The marks obtained by her in the second and third examinations are more than 5 and 10 respectively than in the first examination. If her average mark is at least 80, find the minimum

mark that she should get in the first examination.



Watch Video Solution

16. Solve $24x < 100$, when

(i) x is a natural number,

(ii) x is an integer.



Watch Video Solution

17. Solve $-12x > 30$, when

i. x is a natural number.

ii. x is an integer.



Watch Video Solution

18. Solve $5x - 3 < 7$, when

x is an integer.



Watch Video Solution

19. Solve $5x - 3 < 7$, when

x is a real number.



Watch Video Solution

20. Solve $3x + 8 > 2$, when

i. x is an integer.

ii. x is a real number.



Watch Video Solution

21. Solve $\frac{3(x - 2)}{5} \leq \frac{5(2 - x)}{3}$



Watch Video Solution

22. Solve $\frac{x}{2} < \frac{(5x - 2)}{3} - \frac{(7x - 3)}{5}$



Watch Video Solution

23. Ravi obtained 70 and 75 marks in first two unit tests. Find the number if minimum marks

he should get in the third test to have an average of at least 60 marks.



[Watch Video Solution](#)

24. Find all pairs of consecutive odd positive integers both of which are smaller than 10 such that their sum is more than 11.



[Watch Video Solution](#)

25. A man wants to cut three lengths from a single piece of board of length 91 cm. The second length is to be 3cm longer than the shortest and the third length is to be twice as long as the shortest. What are the lengths of the shortest board if the third piece is to be at least 5 cm longer than the second ?



Watch Video Solution

26. Solve $y < 3$ graphically in two dimensional plane.



[Watch Video Solution](#)

27. i. Write the inequality which represents the shaded half plane in the figure.

ii. Solve $\frac{2x - 1}{5} \leq \frac{7}{2}$, when x is a natural number.



[View Text Solution](#)

28. Solve $3x - 4y < 12$ graphically.



[Watch Video Solution](#)

29. Solve the inequality graphically $x + y < 5$.



Watch Video Solution

30. Solve the inequality graphically $2x + y \geq 6$



Watch Video Solution

31. Solve the inequality $3x + 4y \leq 12$.



Watch Video Solution

32. Solve the inequality graphically $y + 8 \geq 2x$.



Watch Video Solution

33. Solve the following inequalities graphically.

$$2x + y \leq 24,$$

$$x + y \leq 11,$$

$$2x + 5y \leq 40, x \geq 0, y \geq 0$$



Watch Video Solution

34. Draw the graphs of $2x+y = 10$ and $x+y=7$.



Watch Video Solution

35. Solve the following system of inequilities graphically .

$$2x + y \leq 10, x + y \leq 7, x > 0, y > 0$$



Watch Video Solution

36. Draw the graphs of the following system of inequations and mark the solution.

$$2x + y - 3 \geq 0$$

$$x - 2y + 1 \leq 0$$

$$y \leq 3$$



Watch Video Solution

37. $5x + 4y \leq 20, x \geq 1, y \geq 2$



Watch Video Solution

38. Solve the following system of inequalities graphically.

$$x - 2y \leq 3, 3x + 4y \geq 12, x \geq 0, y \geq 0$$



Watch Video Solution

39. Solve the following system of inequalities graphically.

$$x - 2y \leq 3, 3x + 4y \geq 12, x \geq 0, y \geq 0$$



Watch Video Solution

40. Solve the inequality graphically

$$4x + 3y \leq 60, y \geq 2x, x \geq 3, y \geq 0$$



Watch Video Solution

41. Solve the inequalities

$$5x + 1 > -24, 5x - 1 < 24$$



Watch Video Solution

42. Solve the inequalities

$$(2x - 1) < x + 5, 3(x + 2) > 2 - x$$



Watch Video Solution

43. Solve the inequalities $3x - 7 > 2(x - 6)$,

$$6 - x > 11 - 2x$$



Watch Video Solution

44. A solution is to be kept between 68° F and 77° F. what is the range in temperature in degree Celsius (C) if the Celsius/ Fahrenheit (F) conversion formula is given by $F = \frac{9}{5}C + 32$?



Watch Video Solution

45. A solution of 8% boric acid is to be diluted. By adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid . If we have 640 litres of

the 8% solution, how many litres of the 2% solution will have to be added ?



[Watch Video Solution](#)

46. How many litres of water will have to be added to 1125 litres of the 45% solution of acid so that the resulting mixture will contain more than 25 % but less than 30% acid content ?



[Watch Video Solution](#)

47. IQ of a person is given by the formula

$$IQ = \frac{MA}{CA} \times 100$$

where MA is mental age and CA is chronological age. If $80 \leq IQ \leq 140$ for a group of 12 years old children, find the range of their mental age.



[Watch Video Solution](#)

48. Solve $24x < 100$, when x is a natural number.



[Watch Video Solution](#)

 Watch Video Solution

49. Solve the inequality $3x+5 < x-7$, when x is a real number.



Watch Video Solution

50. i. Solve $5x - 3 < 17$ when x is a real number.

ii. Mark the solutions on a number line.



Watch Video Solution

51. Solve $-4x > 30$ when (i) $x \in Z$ (ii) $x \in N$

 [Watch Video Solution](#)

52. Solve the inequality

$$3(x - 145) \leq 2(x - 3)$$

 [Watch Video Solution](#)

53. $2(2x + 3) - 10 < 6(x - 2)$

 [Watch Video Solution](#)

54. Solve the inequality $2 - 3x \geq 2(x + 6)$,
when x is a real number.



[Watch Video Solution](#)

55. Solve the inequality $\frac{5x}{2} + \frac{3x}{4} \geq \frac{39}{4}$,
when x is a real number.



[Watch Video Solution](#)

56. Solve $\frac{3x - 4}{2} \geq \frac{x + 1}{4} - 1$. Show the graph of the solutions on number line.



[Watch Video Solution](#)

57. Find all pairs of consecutive even positive integers, both of which are larger than 5 such that their sum is less than 23.



[Watch Video Solution](#)

58. In an experiment, a solution of hydrochloric acid is kept between 30° and 35° Celsius. What is the range of temperature in degree Fahrenheit.

[The conversion of temperature in Fahrenheit (F) to temperature in degree Celsius (C) is given by $C = \frac{5}{9}(F - 32)$.



Watch Video Solution

59. The longest side of a triangle is 3 times the shortest side and the third side is 2 cm shorter

than the longest side. If the perimeter of the triangle is at least 61 cm, find the minimum length of the shortest side.



[Watch Video Solution](#)

60. Solve $-5 \leq \frac{5 - 3x}{2} \leq 8$.



[Watch Video Solution](#)

61. To receive Grade A in a course , one must obtain an averager of 90 marks or more in five

examinations (each of 100 marks). If Sunita's marks in first four examinations are 87, 92, 94 and 95, find minimum marks that Sunita must obtain in fifth examination to get Grade 'A' in the course.



[Watch Video Solution](#)

62. Arathi took 3 examinations in a year. The marks obtained by her in the second and third examinations are more than 5 and 10 respectively than in the first examination. If her

average mark is atleast 80, find the minimum mark that she should get in the first examination.



[Watch Video Solution](#)

63. Solve $24x < 100$, when

(i) x is a natural number,

(ii) x is an integer.



[Watch Video Solution](#)

64. Solve $-12x > 30$, when

i. x is a natural number.

ii. x is an integer.



Watch Video Solution

65. Solve $5x - 3 < 7$, when

x is an integer.



Watch Video Solution

66. Solve $5x - 3 < 7$, when

(i) x is an integer.

(ii) x is a real number.



Watch Video Solution

67. Solve $3x + 8 > 2$, when

(i) x is an integer.

(ii) x is a real number.



Watch Video Solution

68. Solve $\frac{3(x - 2)}{5} \leq \frac{5(2 - x)}{3}$



Watch Video Solution

69. Solve $\frac{x}{2} < \frac{(5x - 2)}{3} - \frac{(7x - 3)}{5}$



Watch Video Solution

70. Ravi obtained 70 and 75 marks in first two unit tests. Find the number if minimum marks he should get in the third test to have an average of atleast 60 marks.



[Watch Video Solution](#)

71. Find all pairs of consecutive odd positive integers both of which are smaller than 10 such that their sum is more than 11.



[Watch Video Solution](#)

72. A man wants to cut three lengths from a single piece of board of length 91 cm. The second length is to be 3cm longer than the

shortest and the third length is to be twice as long as the shortest. What are the lengths of the shortest board if the third piece is to be at least 5 cm longer than the second ?



[Watch Video Solution](#)

73. Solve $y < 3$ graphically in two dimensional plane.



[Watch Video Solution](#)

74. i. Write the inequality which represents the shaded half plane in the figure.

ii. Solve $\frac{2x - 1}{5} \leq \frac{7}{2}$, when x is a natural number.



[View Text Solution](#)

75. Solve $3x - 4y < 12$ graphically.



[Watch Video Solution](#)

76. Solve the inequality graphically $x + y < 5$.

 [Watch Video Solution](#)

77. Solve the inequality graphically $2x + y \geq 6$

 [Watch Video Solution](#)

78. Solve the inequality $3x + 4y \leq 12$.

 [Watch Video Solution](#)

79. Solve the inequality graphically $y + 8 \geq 2x$.



Watch Video Solution

80. Solve the following inequalities graphically.

$$2x + y \leq 24,$$

$$x + y \leq 11,$$

$$2x + 5y \leq 40, x \geq 0, y \geq 0$$



Watch Video Solution

81. Draw the graphs of $2x+y = 10$ and $x+y=7$.



Watch Video Solution

82. Solve the following system of inequilities graphically .

$$2x + y \leq 10, x + y \leq 7, x > 0, y > 0$$



Watch Video Solution

83. Draw the graphs of the following system of inequations and mark the solution.

$$2x + y - 3 \geq 0$$

$$x - 2y + 1 \leq 0$$

$$y \leq 3$$



Watch Video Solution

84. Solve the following system of inequations graphicallu.

$$5x + 4y \leq 20, x \geq 1, y \geq 2$$



Watch Video Solution

 Watch Video Solution

85. Solve the following system of linear inequalities graphically.

$$x + y \leq 6, x + y \geq 4$$



Watch Video Solution

86. Solve the following system of inequalities graphically.

$$x - 2y \leq 3, 3x + 4y \geq 12, x \geq 0, y \geq 0$$



Watch Video Solution

87. Solve the inequality graphically

$$4x + 3y \leq 60, y \geq 2x, x \geq 3, y \geq 0$$



Watch Video Solution

88. Solve the inequalities

$$5x + 1 > -24, 5x - 1 < 24$$



Watch Video Solution

89. Solve the inequalities

$$(2x - 1) < x + 5, 3(x + 2) > 2 - x$$



Watch Video Solution

90. Solve the inequalities $3x - 7 > 2(x - 6)$,

$$6 - x > 11 - 2x$$



Watch Video Solution

91. A solution is to be kept between 68° F and 77° F. what is the range in temperature in degree Celsius (C) if the Celsius/ Fahrenheit (F) conversion formula is given by $F = \frac{9}{5}C + 32$?



Watch Video Solution

92. A solution of 8% boric acid is to be diluted. By adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid . If we have 640 litres of

the 8% solution, how many litres of the 2% solution will have to be added ?



[Watch Video Solution](#)

93. How many litres of water will have to be added to 1125 litres of the 45% solution of acid so that the resulting mixture will contain more than 25 % but less than 30% acid content ?



[Watch Video Solution](#)

94. IQ of a person is given by the formula

$$IQ = \frac{MA}{CA} \times 100$$

where MA is mental age and CA is chronological age. If $80 \leq IQ \leq 140$ for a group of 12 years old children, find the range of their mental age.



[Watch Video Solution](#)

Exercise

1. The number of positive integer solutions of

$$24x < 100 \text{ is}$$

A. 4

B. 5

C. 3

D. 2

Answer: A



Watch Video Solution

2. If $3x + 8 > 2$, then the smallest integer value of $5x + 12$ is

A. 1

B. 2

C. 3

D. 4

Answer: C



Watch Video Solution

3. The smallest positive integer value of x

satisfying $\frac{x}{4} \leq \frac{5x - 2}{3} - \frac{7x - 3}{5}$ is

A. 2

B. 4

C. 3

D. 5

Answer: D



Watch Video Solution

4. If $|x - 5| < 1$ then the range of

$$f(x) = \frac{x}{x + 10} \text{ is}$$

A. $\left(\frac{2}{3}, \frac{3}{8}\right)$

B. $(0, \infty)$

C. $\left(\frac{3}{7}, \frac{3}{4}\right)$

D. $(1, \infty)$

Answer: A



View Text Solution

5. The solution set of $|3x - 2| < 1$ is

A. $[-1, 1]$

B. $(1, 3)$

C. $\left[\frac{1}{3}, 3\right]$

D. $\left(\frac{1}{3}, 1\right)$

Answer: D



Watch Video Solution

6. The number of integer solutions

$$|2x - 3| < 1 \text{ is}$$

A. 1

B. 0

C. 4

D. 2

Answer: B



Watch Video Solution

7. The solution set of inequations $2x - 1 \leq 3$

and $3x + 1 \geq -5$ is

A. $(-2, 2)$

B. $[-2, 2]$

C. $(-\infty, -2) \cup [2, \infty)$

D. $(-\infty, -2) \cup (2, \infty)$

Answer: B



Watch Video Solution

8. The number of integer solutions of

$$\frac{x - 3}{x + 5} > 0 \text{ and } -7 < x < 5 \text{ is}$$

A. 0

B. 1

C. 2

D. 3

Answer: C



Watch Video Solution

9. The number of integral solutions of

$$\frac{x + 8}{x + 2} \leq 2 \text{ is}$$

A. 3

B. 4

C. 5

D. 6

Answer: D



Watch Video Solution

10. The solution set $|x - 2| < |2x - 1|$ is

A. $(-\infty, -1)$

B. $(1, \infty)$

C. $(-\infty, -1) \cup (1, \infty)$

D. $(-1, 1)$

Answer: C



Watch Video Solution

11. The solution set of $|x + 1| + |x - 1| < 2$ is

A. $(-1, 1)$

B. $(0, 1)$

C. $(-1, 0)$

D. None of these

Answer: D



Watch Video Solution

12. A solution is to be kept between 77° F and 86° F . The range of temperature in degree celsius (C), if the Celsius /Fahrenheit (F) conversion formula is $F = \frac{9}{5}C + 32$ is

A. $20 < C < 25$

B. $20 < C < 30$

C. $20 < C < 24$

D. $30 < C < 33$

Answer: B



Watch Video Solution

13. The solution of $\frac{x + 3}{x - 2} \leq 2$ is

A. $(-\infty, \infty)$

B. $(-\infty, 2] \cup (7, \infty)$

C. $(-\infty, 2) \cup [7, \infty)$

D. $[7, \infty)$

Answer: C



Watch Video Solution

14. The number of positive integer solutions of

$$24x < 100 \text{ is}$$

A. 4

B. 5

C. 3

D. 2

Answer: A



Watch Video Solution

15. If $3x + 8 > 2$, then the smallest integer value of $5x + 12$ is

A. 1

B. 2

C. 3

D. 4

Answer: C



Watch Video Solution

16. The smallest positive integer value of x

satisfying $\frac{x}{4} \leq \frac{5x - 2}{3} - \frac{7x - 3}{5}$ is

A. 2

B. 4

C. 3

D. 5

Answer: D



Watch Video Solution

17. If $|x - 5| < 1$ then the range of

$$f(x) = \frac{x}{x + 10} \text{ is}$$

A. $\left(\frac{2}{3}, \frac{3}{8}\right)$

B. $(0, \infty)$

C. $\left(\frac{3}{7}, \frac{3}{4}\right)$

D. $(1, \infty)$

Answer: A



View Text Solution

18. The solution set of $|3x - 2| < 1$ is

A. $[-1, 1]$

B. $(1, 3)$

C. $\left[\frac{1}{3}, 3\right]$

D. $\left(\frac{1}{3}, 1\right)$

Answer: D



Watch Video Solution

19. The number of integer solutions

$$|2x - 3| < 1 \text{ is}$$

A. a. 1

B. b. 0

C. c. 4

D. d. 2

Answer: B



Watch Video Solution

20. The solution set of inequations $2x - 1 \leq 3$

and $3x + 1 \geq -5$ is

A. $(-2, 2)$

B. $[-2, 2]$

C. $(-\infty, -2) \cup [2, \infty)$

D. $(-\infty, -2) \cup (2, \infty)$

Answer: B



Watch Video Solution

21. The number of integer solutions of

$$\frac{x - 3}{x + 5} > 0 \text{ and } -7 < x < 5 \text{ is}$$

A. 0

B. 1

C. 2

D. 3

Answer: C



Watch Video Solution

22. The number of integral solutions of

$$\frac{x + 8}{x + 2} \leq 2 \text{ is}$$

A. 3

B. 4

C. 5

D. 6

Answer: D



Watch Video Solution

23. The solution set $|x - 2| < |2x - 1|$ is

A. a. $(-\infty, -1)$

B. b. $(1, \infty)$

C. c. $(-\infty, -1) \cup (1, \infty)$

D. d. $(-1, 1)$

Answer: C



Watch Video Solution

24. The solution set of $|x + 1| + |x - 1| < 2$ is

A. $(-1, 1)$

B. $(0, 1)$

C. $(-1, 0)$

D. None of these

Answer: D



Watch Video Solution

25. A solution is to be kept between 77° F and 86° F . The range of temperature in degree celsius (C), if the Celsius /Fahrenheit (F) conversion formula is $F = \frac{9}{5}C + 32$ is

A. $20 < C < 25$

B. $20 < C < 30$

C. $20 < C < 24$

D. $30 < C < 33$

Answer: B



Watch Video Solution

26. The solution of $\frac{x + 3}{x - 2} \leq 2$ is

A. $(-\infty, \infty)$

B. $(-\infty, 2] \cup (7, \infty)$

C. $(-\infty, 2) \cup [7, \infty)$

D. $[7, \infty)$

Answer: C



Watch Video Solution

Questions From Competitive Exams

1. The set of all x satisfying the inequality

$$\frac{4x - 1}{3x + 1} \geq 1 \text{ is}$$

A. $\left(-\infty, -\frac{1}{3}\right) \cup \left[\frac{1}{4}, \infty\right)$

B. $\left(-\infty, -\frac{2}{3}\right) \cup [2, \infty)$

C. $\left(-\infty, -\frac{1}{3}\right) \cup [2, \infty)$

D. $\left(-\infty, -\frac{2}{3}\right) \cup [4, \infty)$

Answer: C



Watch Video Solution

2. The set of values of x satisfying

$$2 \leq |x - 3| < 4 \text{ is}$$

A. $(-1, 1] \cup [5, 7)$

B. $-4 \leq x \leq 2$

C. $-1 < x < 7$ or $x > 5$

D. $x < 7$ or $x \geq 5$

Answer: A



Watch Video Solution

3. Number of integral solutions of

$$\frac{x + 2}{x^2 + 1} > \frac{1}{2} \text{ is}$$

A. 0

B. 1

C. 2

D. 3

Answer: D



Watch Video Solution

4. If r is a real number $|r| < 1$ and if $a = 5(1-r)$, then

A. $0 < a < 5$

B. $-5 < a < 5$

C. $0 < a < 10$

D. $0 \leq a < 10$

Answer: C



Watch Video Solution

5. Suppose a, b and c are real numbers such that $\frac{a}{b} > 1$ and $\frac{a}{c} < 0$. What one of the following is true?

A. $a + b - c > 0$

B. $a > b$

C. $(a - c)(b - a) > 0$

D. $a + b + c > 0$

Answer: C



Watch Video Solution

6. If $x^2 + 2x + n > 10$ for all real number x , then which of the following conditions is true ?

A. $n < 11$

B. $n = 10$

C. $n = 11$

D. $n > 11$

Answer: D



Watch Video Solution

7. The set of admissible value of x such that

$$\frac{2x + 3}{2x - 9} < 0 \text{ is}$$

A. $\left(-\infty, -\frac{3}{2}\right) \cup \left(\frac{9}{2}, \infty\right)$

B. $(-\infty, 0) \cup \left(\frac{9}{2}, \infty\right)$

C. $\left(-\frac{3}{2}, 0\right)$

D. $\left(-\frac{3}{2}, \frac{9}{2}\right)$

Answer: D



Watch Video Solution

8. If x satisfies the inequations $2x - 7 < 11$, $3x + 4 < -5$, then x lies in the interval

A. $(-\infty, 3)$

B. $(-\infty, 2)$

C. $(-\infty, -3)$

D. $(-\infty, \infty)$

Answer: C



Watch Video Solution

9. The set of all real x satisfying the inequality

$$\frac{3 - |x|}{4 - |x|} \geq 0 \text{ is}$$

A. $[3, 3] \cup (-\infty, -4) \cup (4, \infty)$

B. $(-\infty, -4) \cup (4, \infty)$

C. $(-\infty, -3) \cup (4, \infty)$

D. $(-\infty, -3) \cup (3, \infty)$

Answer: A



Watch Video Solution

10. The solution set of the inequation

$$\frac{x + 11}{x - 3} > 0 \text{ is}$$

A. $(-\infty, -11) \cup (3, \infty)$

B. $(-\infty, -10) \cup (2, \infty)$

C. $(-100, -11) \cup (1, \infty)$

D. $(0, 5) \cup (-1, 0)$

Answer: A



Watch Video Solution

11. If $3 \leq 3t - 18 \leq 18$, then which one of the following is true?

A. $15 \leq 2t + 1 \leq 20$

B. $8 \leq t < 12$

C. $8 \leq t + 1 \leq 13$

D. $21 \leq 3t \leq 24$

Answer: C



Watch Video Solution

12. If $|2x - 3| < |x + 5|$, then x lies in the interval

A. $(-3, 5)$

B. $(5, 9)$

C. $\left(-\frac{2}{3}, 8\right)$

D. $\left(-8, \frac{2}{3}\right)$

Answer: C



Watch Video Solution

13. The solution of $\frac{x + 3}{x - 2} \leq 2$ is

A. A. $(-\infty, \infty)$

B. B. $(-\infty, 2] \cup [7, \infty)$

C. C. $(-\infty, 2) \cup [7, \infty)$

D. D. $(7, \infty)$

Answer: C



Watch Video Solution

14. If $\frac{2x + 3}{5} < \frac{4x - 1}{2}$, then x lies in the interval

A. $\left[0, \frac{11}{16}\right]$

B. $\left[\frac{11}{16}, \infty\right)$

C. $\left(0, \frac{11}{16}\right)$

D. $\left(\frac{11}{16}, \infty\right)$

Answer: D



Watch Video Solution

15. If $7x - 2 < 4 - 3x$ and $3x - 1 < 2 + 5x$,

then x lies in the interval

A. $\left(\frac{3}{5}, \frac{3}{2}\right)$

B. $\left(-3, 2, \frac{3}{5}\right)$

C. $\left[-\frac{3}{2}, \frac{3}{5}\right)$

D. $\left[-\frac{3}{2}, \frac{3}{5}\right]$

Answer: B



Watch Video Solution

16. If x satisfies the inequalities

$$x + 7 \leq 2x + 3 \text{ and } 2x + 4 < 5x + 3, \text{ then } x$$

lies in the interval

A. $(-\infty, 3)$

B. $(1, 3)$

C. $(4, \infty)$

D. $(-\infty, -1)$

Answer: C



Watch Video Solution

17. The set of point (x,y) satisfying $x+y \leq 1$, $-x - y \leq 1$ lie in the region bounded by the two straight lines passing through the respective pair of points.

A.

$$\{(1, 0), (0, 1)\} \text{ and } \{(-1, 0), (0, -1)\}$$

B.

$$\{(1, 0), (1, 1)\} \text{ and } \{(-1, 0), (0, -1)\}$$

C.

$$\{(-1, 0), (0, -1)\} \text{ and } \{(1, 0), (-1, 1)\}$$

D.

$$\{(1, 0), (0, -1)\} \text{ and } \{(-1, 0), (0, 1)\}$$

Answer: A



Watch Video Solution

18. The number of solutions of the inequation

$$|x - 1| + |x + 2| < 4 \text{ is}$$

A. 1

B. 2

C. 4

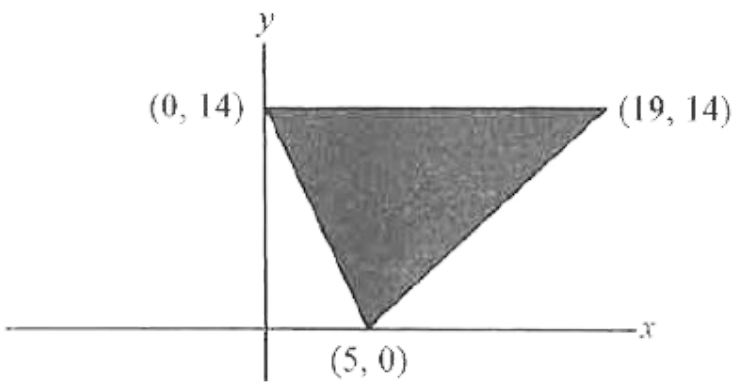
D. 0

Answer: D



Watch Video Solution

19. The shaded region shown in the figure is given by the inequations



- A. $14x + 5y \geq 70$, $y \leq 14$ and $x - y \geq 5$
- B. $14x + 5y \leq 70$, $y \leq 14$ and $x - y \geq 5$
- C. $14x + 5y \geq 70$, $y \geq 14$ and $x - y \geq 5$
- D. $14x + 5y \geq 70$, $y \leq 14$ and $x - y \leq 5$

Answer: D



Watch Video Solution

20. The set of all x satisfying the inequality

$$\frac{4x - 1}{3x + 1} \geq 1 \text{ is}$$

A. $\left(-\infty, -\frac{1}{3}\right) \cup \left[\frac{1}{4}, \infty\right)$

B. $\left(-\infty, -\frac{2}{3}\right) \cup [2, \infty)$

C. $\left(-\infty, -\frac{1}{3}\right) \cup [3, \infty)$

D. $\left(-\infty, -\frac{2}{3}\right) \cup [4, \infty)$

Answer: C



Watch Video Solution

21. The set of values of x satisfying

$$2 \leq |x - 3| < 4 \text{ is}$$

A. $(-1, 1] \cup [5, 7)$

B. $-4 \leq x \leq 2$

C. $-1 < x < 7$ or $x > 5$

D. $x < 7$ or $x \geq 5$

Answer: A



Watch Video Solution

22. Number of integral solutions of

$$\frac{x + 2}{x^2 + 1} > \frac{1}{2} \text{ is}$$

A. 0

B. 1

C. 2

D. 3

Answer: D



Watch Video Solution

23. If r is a real number $|r| < 1$ and if $a = 5(1-r)$, then

A. $0 < a < 5$

B. $-5 < a < 5$

C. $0 < a < 10$

D. $0 \leq a < 10$

Answer: C



Watch Video Solution

24. Suppose a, b and c are real numbers such that $\frac{a}{b} > 1$ and $\frac{a}{c} < 0$. What one of the following is true?

A. $a + b - c > 0$

B. $a > b$

C. $(a - c)(b - a) > 0$

D. $a + b + c > 0$

Answer: C



Watch Video Solution

25. If $x^2 + 2x + n > 10$ for all real number x , then which of the following conditions is true ?

A. $n < 11$

B. $n = 10$

C. $n = 11$

D. $n > 11$

Answer: D



Watch Video Solution

26. The set of admissible value of x such that

$$\frac{2x + 3}{2x - 9} < 0 \text{ is}$$

A. $\left(-\infty, -\frac{3}{2}\right) \cup \left(\frac{9}{2}, \infty\right)$

B. $\left(-\infty, 0\right) \cup \left(\frac{9}{2}, \infty\right)$

C. $\left(-\frac{3}{2}, 0\right)$

D. $\left(-\frac{3}{2}, \frac{9}{2}\right)$

Answer: D



Watch Video Solution

27. If x satisfies the inequations $2x - 7 < 11$, $3x + 4 < -5$, then x lies in the interval

A. $(-\infty, 3)$

B. $(-\infty, 2)$

C. $(-\infty, -3)$

D. $(-\infty, \infty)$

Answer: C



Watch Video Solution

28. The set of all real x satisfying the inequality

$$\frac{3 - |x|}{4 - |x|} \geq 0 \text{ is}$$

A. $[3, 3] \cup (-\infty, -4) \cup (4, \infty)$

B. $(-\infty, -4) \cup (4, \infty)$

C. $(-\infty, -3) \cup (4, \infty)$

D. $(-\infty, -3) \cup (3, \infty)$

Answer: A



Watch Video Solution

29. The solution set of the inequation

$$\frac{x + 11}{x - 3} > 0 \text{ is}$$

A. $(-\infty, -11) \cup (3, \infty)$

B. $(-\infty, -10) \cup (2, \infty)$

C. $(-100, -11) \cup (1, \infty)$

D. $(0, 5) \cup (-1, 0)$

Answer: A



Watch Video Solution

30. If $3 \leq 3t - 18 \leq 18$, then which one of the following is true?

A. $15 \leq 2t + 1 \leq 20$

B. $8 \leq t < 12$

C. $8 \leq t + 1 \leq 13$

D. $21 \leq 3t \leq 24$

Answer: C



Watch Video Solution

31. If $|2x - 3| < |x + 5|$, then x lies in the interval

A. $(-3, 5)$

B. $(5, 9)$

C. $\left(-\frac{2}{3}, 8\right)$

D. $\left(-8, \frac{2}{3}\right)$

Answer: C



Watch Video Solution

32. The solution of $\frac{x + 3}{x - 2} \leq 2$ is

A. $(-\infty, \infty)$

B. $(-\infty, 2] \cup [7, \infty)$

C. $(-\infty, 2) \cup [7, \infty)$

D. $(7, \infty)$

Answer: C



Watch Video Solution

33. If $\frac{2x + 3}{5} < \frac{4x - 1}{2}$, then x lies in the interval

A. $\left[0, \frac{11}{16}\right]$

B. $\left[\frac{11}{16}, \infty\right)$

C. $\left(0, \frac{11}{16}\right)$

D. $\left(\frac{11}{16}, \infty\right)$

Answer: D



Watch Video Solution

34. If $7x - 2 < 4 - 3x$ and $3x - 1 < 2 + 5x$,

then x lies in the interval

A. $\left(\frac{3}{5}, \frac{3}{2}\right)$

B. $\left(-3, 2, \frac{3}{5}\right)$

C. $\left[-\frac{3}{2}, \frac{3}{5}\right)$

D. $\left[-\frac{3}{2}, \frac{3}{5}\right]$

Answer: B



Watch Video Solution

35. If x satisfies the inequalities $x + 7 \leq 2x + 3$ and $2x + 4 < 5x + 3$, then x lies in the interval

A. $(-\infty, 3)$

B. $(1, 3)$

C. $(4, \infty)$

D. $(-\infty, -1)$

Answer: C



Watch Video Solution

36. The set of point (x,y) satisfying $x+y \leq 1$, $-x - y \leq 1$ lie in the region bounded by the two straight lines passing through the respective pair of points.

A.

$$\{(1, 0), (0, 1)\} \text{ and } \{(-1, 0), (0, -1)\}$$

B.

$$\{(1, 0), (1, 1)\} \text{ and } \{(-1, 0), (0, -1)\}$$

C.

$$\{(-1, 0), (0, -1)\} \text{ and } \{(1, 0), (-1, 1)\}$$

D.

$$\{(1, 0), (0, -1)\} \text{ and } \{(-1, 0), (0, 1)\}$$

Answer: A



Watch Video Solution

37. The number of solutions of the inequation

$$|x - 1| + |x + 2| < 4 \text{ is}$$

A. 1

B. 2

C. 4

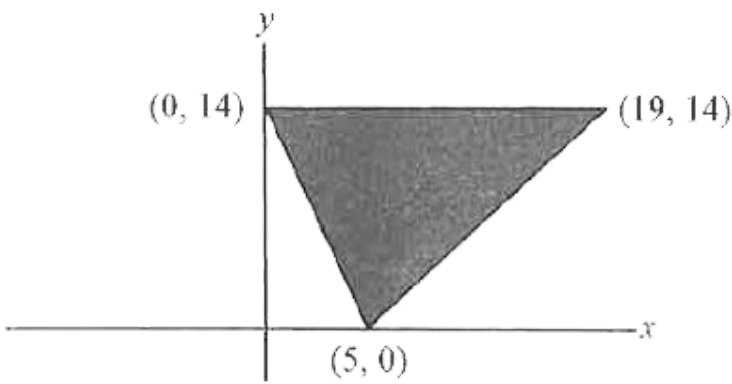
D. 0

Answer: D



Watch Video Solution

38. The shaded region shown in the figure is given by the inequations



- A. $14x + 5y \geq 70, y \leq 14$ and $x - y \geq 5$
- B. $14x + 5y \leq 70, y \leq 14$ and $x - y \geq 5$
- C. $14x + 5y \geq 70, y \geq 14$ and $x - y \geq 5$
- D. $14x + 5y \geq 70, y \leq 14$ and $x - y \leq 5$

Answer: D



Watch Video Solution

