



MATHS

BOOKS - HIMALAYA MATHS

(KANNADA ENGLISH)

LINEAR INEQUALITIES

Question Bank

1. The inequality $\frac{4}{x} < 5$ is true, when x

belongs to

A. a. $\left[\frac{4}{5}, \infty\right)$

B. b. $\left(-\infty, \frac{4}{5}\right)$

C. c. $\left(-\infty, 0\right) \cup \left(\frac{4}{5}, \infty\right)$

D. d. \mathbb{R}

Answer: C



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2. The solution of the in equation ($x \in \mathbb{R}$)

$4x + 3 < 6x + 7$ is

A. a. $x < -2$

B. b. $x > -2$

C. c. $-2 < x < 2$

D. d. -2

Answer: B



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3. The solution of the in equation ($x \in R$)

$4x + 3 < 6x + 7$ is

A. $(0, 1, 2, 3, 4, \dots)$

B. $(-2, -1, 0, 1, 2, 3, 4, \dots)$

C. $(-1, 0, 1, 2, 3, 4, \dots)$

D. $(1, 2, 3, 4, \dots)$

Answer: C



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4. Solution of the inequation $\frac{x + 5}{x - 2} \leq 0$ is

A. $-5 \leq x \leq 2$

B. $-5 \leq x \leq -2$

C. $-2 \leq x \leq 5$

D. $2 \leq x \leq 5$

Answer: A



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5. The solution set of $\frac{x - 3}{x + 4} > 0$ is

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

B. $(-\infty, 3)$

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

D. $(3, \infty)$

Answer: C



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6. Solution set of the inequation $\frac{x - 4}{x + 1} \geq 2$ is

A. $[-6, 1]$

B. $[-6, 1]$

C. $[-6, 1]$

D. $[-6, -1]$

Answer: D



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7. The solution set of the equation

$$\frac{5x + 8}{4 - x} \leq 2$$

A. $(-\infty, 0] \cup (4, \infty)$

B. $[0, 4)$

C. $(-\infty, 4)$

D. $[0, \infty)$

Answer: A



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$$8.6 \leq -3(2x - 4) < 12$$

A. $(0, 1]$

B. $(0, 1)$

C. $[0, 1]$

D. $(-1, 0]$

Answer: C



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9. The solution set of $|5x - 6| \geq 8$ is

A. $\left(-\infty, -\frac{2}{5}\right] \cup \left(\frac{14}{5}, \infty\right)$

B. $-\infty, -\frac{2}{5}] \cup \left(\frac{14}{5}, \infty\right)$

C. $\left(-\infty, -\frac{2}{5}\right] \cup \left[\frac{14}{5}, \infty\right)$

D. $\left(-\infty, -\frac{2}{5}\right] \cup \left(\frac{14}{5}, \infty\right)$

Answer: A



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10. The solution set of $|4x - 3| < 27$ is

A. a. $\left[-6, -\frac{15}{2} \right]$

B. b. $\left[-6, \frac{15}{2} \right)$

C. c. $\left(-6, -\frac{15}{2} \right]$

D. d. $\left(-6, -\frac{15}{2} \right)$

Answer: D



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11. Solution set of $\left| \frac{2x - 1}{x - 1} \right| < 2$ is

A. $(-\infty, 1)$

B. $\left(-\infty, \frac{3}{4}\right)$

C. $(1, \infty)$

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

Answer: B



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12. Solution set of $|x - 4| < 5$, $|2x + 5| > 7$ is

A. $(-1, 9)$

B. $(-1, 9) \cap (-\infty, -6)$

C. $(1, 9)$

D. $(-\infty, -6) \cup (1, \infty)$

Answer: C



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13. The solution set of $\frac{3x - 4}{2} \geq \frac{x + 1}{4} - 1$ is

A. $[0, 1]$

B. $[1, \infty)$

C. $(1, \infty)$

D. $(-\infty, 1]$

Answer: B



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14. Solution set of $\left| \frac{2}{x-4} \right| > 1, x \neq 4$ is

A. $(2, 4) \cup (4, 6)$

B. $(2, 4)$

C. $(4, 6)$

D. ϕ

Answer: A



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15. The solution set of $|x^2 - 8| \leq 8$ is

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

B. 2) $(-\infty, 4]$

C. 3) $[-4, 4]$

D. 4) $[4, \infty)$

Answer: C



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16. Solution set of $\frac{|x - 4|}{x - 4} \leq 0$ is

A. $(-\infty, 4)$

B. $(4, \infty)$

C. $(-4, 4)$

D. (4)

Answer: A



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17. The solution set of the inequation

$$|x - 1| + |x - 2| + |x - 3| \geq 6 \text{ is}$$

A. $(-\infty, -2]$

B. $(-\infty, 0] \cup [4, \infty)$

C. $[4, \infty)$

D. $[6, \infty)$

Answer: B



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18. The solution set of the inequation

$$\frac{x}{x+2} \leq \frac{1}{x}$$

A. $(3,0)$

B. $(0,3]$

C. $(0,3)$

D. $(-\infty, 3)$

Answer: C



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19. The solution set of the inequation

$$\frac{x}{x+2} \leq \frac{1}{x}$$

A. $[-2, -1) \cup [0, 2)$

B. $(-2, -1] \cup (0, 2)$

C. $(-2, -1) \cup (0, 2)$

D. $(-2, -1) \cup (0, 2]$

Answer: D



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20. The solution of the inequation

$$\frac{x^2 + 2x - 3}{x^2 + 1} < 0$$

A. $(-3, 1)$

B. (-3,0)

C. (-3,-1)

D. (-1,0)

Answer: A



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21. The solution set of the inequation

$$\frac{x^2 + 4x + 4}{2x^2 - x - 1} > 0$$

A.

$$(-\infty, -2) \cup \left(-2, -\frac{1}{2}\right) \cup (1, \infty)$$

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

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

D. $(-\infty, -\frac{1}{2}) \cup (-\frac{1}{2}, 1)$

Answer: A



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22. Solution set of $\frac{(x-1)(x+2)^2}{-1-x} < 0$

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

B. $(-\infty, -2) \cup (-2, -1) \cup (1, \infty)$

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

D. $(-\infty, -2) \cup (1, \infty)$

Answer: B



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23. Solution set of $\frac{x^2 - 7x + 12}{2x^2 + 4x + 5} > 0$

A. (3,4)

B. $(-\infty, 3)$

C. $(4, \infty)$

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

Answer: D



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24. The solution of the inequation

$$\frac{1 - 2x - 3x^2}{3x - x^2 - 5} > 0 \text{ is}$$

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

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

$$\text{C. 3) } \left(\frac{1}{3}, \infty\right)$$

$$\text{D. 4) } \left(-1, \frac{1}{3}\right)$$

Answer: B



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25. Solution set of the inequation

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

$$\text{A. 1) } \left(-\frac{9}{2}, 2\right) \cup (3, \infty)$$

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

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

$$\text{D. } 4) \left(-\infty, -\frac{9}{2} \right) \cup (3, \infty)$$

Answer: A



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26. The solution set of the inequation

$$\left| \frac{x^2 - 7}{8x} \right| \geq 1 \text{ is}$$

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

B. $(-\infty, -7] \cup [-1, 0) \cup (0, 1] \cup [7, \infty)$

C. $[-1, 0) \cup (0, 1]$

D. $[-1, 0) \cup (0, 1] \cup [7, \infty)$

Answer: B



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27. The solution of the inequation

$$\frac{7}{(x-2)(x-3)} + \frac{9}{x-3} + 1 < 0 \text{ is}$$

A. $(-5, 3)$

B. $(-5, 2)$

C. $(1, 2) \cup (3, \infty)$

D. $(-5, 1) \cup (2, 3)$

Answer: D



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28. The solution set of the inequation

$$\frac{x^2 + 6x - 7}{|x + 4|} < 0 \text{ is } \text{-----}$$

A. $(-7, -4) \cup (-4, 1)$

B. (-7,1)

C. (-7,-4)

D. $(-7, -4) \cup (4, 1)$

Answer: A



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29. The solution of the inequation

$$\frac{x^2 - 7|x| + 10}{x^2 + 6x + 9} < 0 \text{ is}$$

A. (-5,5)

B. $(-5, -2) \cup (2, 3) \cup (3, 5)$

C. $(2, 5)$

D. $(-5, -2) \cup (4, 5)$

Answer: B



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30. If S is the set of all real x such that

$$\frac{2x}{2x^2 + 5x + 2} > \frac{1}{x + 1} \text{ then } S \text{ is equal to}$$

A. $(-2, -1)$

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

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

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

Answer: D



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31. Solution set of $\left|x + \frac{1}{x}\right| > 2$ is

A. $R - (0)$

B. $R - (-1, 0, 1)$

C. $R - (1)$

D. $R - (0, 1)$

Answer: B



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32. Solution of $|x - 1| \geq |x - 3|$ is

A. $x \leq 2$

B. $x \geq 2$

C. $[2,3]$

D. [1,3]

Answer: B



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33. The number of integral solutions of,

$$x^2 - 5x + 4 < 0 \text{ is}$$

A. 1

B. 2

C. 3

D. 4

Answer: B



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34. The solution set of

$$x^2 + 2 \leq 3x \leq 2x^2 - 5 \text{ is}$$

A. 1) ϕ

B. 2) $[1, 2]$

C. 3) $(-\infty, -1) \cup \left[\frac{5}{2}, \infty \right)$

D. 4) $\left[\frac{5}{2}, \infty\right)$

Answer: A



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35. Number of pairs of consecutive odd integers both of which are larger than 8 and such that their sum is less than 34 is

A. 1

B. 2

C. 3

D. 4

Answer: D



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36. Number of pairs of consecutive even integers, both of which smaller than 12 such that their sum is greater than 14

A. 1

B. 2

C. 3

D. 4

Answer: A



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37. The set of values of x for which the inequality

$$|x - 1| + |x + 1| < 4$$

always holds true is :

A. $(-2, 2)$

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

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

D. none of these

Answer: A



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38. The set of all real numbers x for which

$$x^2 - |x + 2| + x > 0 \text{ is}$$

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

B. $(-\infty, -\sqrt{2}) \cup (\sqrt{2}, \infty)$

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

D. $(\sqrt{2}, \infty)$

Answer: B



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39. The solution of $6 + x - x^2 > 0$ is :

A. $-1 \leq x \leq 2$

B. $-2 \leq x \leq 3$

C. $-2 \leq x \leq -1$

D. none of these

Answer: B



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40. The number of integral solutions of

$$\frac{x + 1}{x^2 + 2} > \frac{1}{4} \text{ is}$$

A. 1

B. 2

C. 4

D. none of these

Answer: C



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41. If S is the set of all real x such that

$$\frac{2x}{2x^2 + 5x + 2} > \frac{1}{x + 1} \text{ then } S \text{ is equal to}$$

A. $(-2, -1)$

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

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

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

Answer: D



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42. If $[x]$ denotes the greatest integer less than or equal to x , then the solution of

$$\frac{[x] - 6}{8 - [x]} > 0 \text{ is}$$

A. $(6,7]$

B. $[7,8)$

C. $[6,7)$

D. $[6,7]$

Answer: B



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43. If $x < 5$ then

A. $-x < -5$

B. $-x \leq -5$

C. $-x > -5$

D. $-x \geq -5$

Answer: C



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44. Given that x, y and b are real numbers and

$x < y, b < 0$ then,

A. $\frac{x}{b} < \frac{y}{b}$

B. $\frac{x}{b} \leq \frac{y}{b}$

C. $\frac{x}{b} > \frac{y}{b}$

D. $\frac{x}{b} \geq \frac{y}{b}$

Answer: C



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45. If $-3x + 17 < -13$, then :

A. $x \in (10, \infty)$

B. $x \in [10, \infty)$

C. $x \in (- \infty, 10)$

D. $x \in [- 10, 10]$

Answer: A



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46. If $|x - 1| > 5$, then :

A. $x \in (- 4, 6)$

B. $x \in [- 4, 6]$

C. $x \in (- \infty, - 4) \cup (6, \infty)$

D. $x \in [- \infty, - 4] \cup (6, \infty)$

Answer: C



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47. If $| x + 2 | \leq 9$, then :

A. $x \in (- 7, 11)$

B. $x \in [- 11, 7]$

C. $x \in (- \infty, - 7) \cup (11, \infty)$

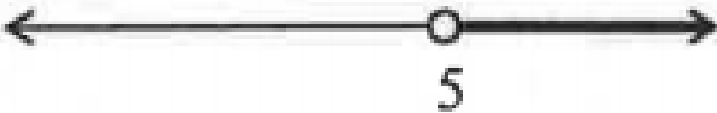
D. $x \in (- \infty, - 7) \cup [11, \infty)$

Answer: B



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48. Solution of linear inequality in variable x , represented by the line is



A. $x \in \left(\frac{9}{2}, \infty \right)$

B. $x \in \left[\frac{9}{2}, \infty \right)$

C. $x \in \left(-\infty, \frac{9}{2} \right)$

$$D. x \in \left(-\infty, \frac{9}{2} \right]$$

Answer: B



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49. x and b are real numbers. If $b > 0$ and

$|x| > b$, then

A. $x \in (-b, \infty)$

B. $x \in [-\infty, b)$

C. $x \in (-b, b)$

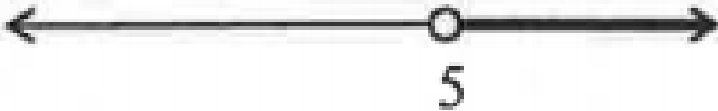
$$D. x \in (- \infty, - b) \cup (b, \infty)$$

Answer: D



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50. Solution of linear inequality in variable x , represented by the line is



A. $x \in (- \infty, - 2)$

B. $x \in (- \infty, - 2]$

C. $x \in (-2, \infty)$

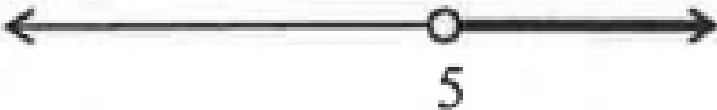
D. $x \in [-2, \infty)$

Answer: B



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51. Solution of linear inequality in variable x , represented by the line is



A. $x \in \left(-\infty, \frac{7}{2}\right)$

B. $x \in \left(-\infty, \frac{7}{2} \right]$

C. $x \in \left[\frac{7}{2}, -\infty \right)$

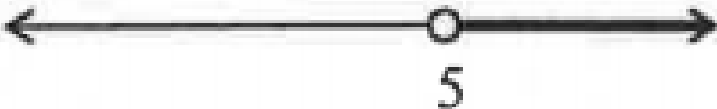
D. $x \in \left(\frac{7}{2}, \infty \right)$

Answer: A



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52. Solution of linear inequality in variable x , represented by the line is



A. $x \in (-\infty, 5)$

B. $x \in (-\infty, 5]$

C. $x \in [5, \infty)$

D. $x \in (5, \infty)$

Answer: D



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53. The set of all real numbers x for which

$$x^2 - |x + 2| + x > 0 \text{ is}$$

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

B. $(-\infty, -\sqrt{2}) \cup (\sqrt{2}, \infty)$

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

D. $(\sqrt{2}, \infty)$

Answer: B



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54. The set of values of x for which the inequality

$$|x - 1| + |x + 1| < 4$$

always holds true is :

A. $(-2, 2)$

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

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

D. None of these

Answer: A



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