doubtnut
India's Number 1 Education App

MATHS

BOOKS - MODERN PUBLISHERS MATHS (HINGLISH)

LINEAR INEQUATIONS

Illustrative Examples

1. Solve $\frac{5-2x}{3} \leq \frac{x}{6} - 5.$

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2. $\leq \frac{(3x+11)}{2} \leq 11$

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3. Solve $7x + 3 < 5x + 9$. Show the graph of the solutions on number line.

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4. Solve the following inequations:

(i) $3x - 6 < 0$

(ii) $-3x + 9 \leq 0$

(iii) $7x + 5 > 33$

(iv) $5x - 15 \geq 0.$

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5. Solve the inequation: $5x - 1 > 3x + 7$

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6. solve the following inequations.

$$\frac{3(x-2)}{5} \geq \frac{5(2-x)}{3}$$

(ii) $\frac{2x-2}{4} + 9 \geq 3 + \frac{4x}{3}$

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7. Solve the following inequations

(i) $\frac{x-3}{x-5} > 0$

(ii) $\frac{x+3}{x-2} \leq 2.$

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8. Solve: $\frac{2x-3}{4}+8 \geq 2+\frac{4x}{3}$ and show the solution set on the number line.

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9. Solve $3x+5 < x-7$, when:

(i) x is an integer (ii) x is a real number.

Show graph of the solution set on the number line in both cases.

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10. Solve the system of inequation:

$x - 2 > 0, 3x < 18$

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11. Solve each of the following system of equation in $R: 2x - 7 > 5 - x,\ 11 - 5x \leq 1$

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12. Solve the system of inequations:

$3x - 7 < 5 + x,$

$11 - 5x \leq 1.$

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13. Solve the following system of inequations:

$\frac{5x}{4} + \frac{3x}{8} > \frac{39}{8}.$

and $\frac{2x-1}{12} - \frac{x-11}{3} < \frac{3x+1}{4}.$

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14. Solve the following system of inequation

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

$$\frac{2x-3}{4}+6 \geq 2+4\frac{x}{3}$$

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15. Represent the following inequations graphically in two-dimensional plane and hence, solve them,

(i) $x > -2$

(ii) $y < 3$

(iii) $2x - 3 \geq 0.$

(iv) $y \leq -3.$

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16. Solve graphically:

(i) $|x| < 2$

(ii) $|y| \geq 3$.

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17. Solve graphically the inequation:

$x + 2y - 4 < 0$.

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18. Draw the graph of the inequation

$3x - 5y + 8 \geq 0.$

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19. Find the region enclosed by the following inequations:

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

Also, find the ordered pairs of the vertices of the region.

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

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21. in the first four examinations, each of 100 marks Hamid got 94,72,72,84 marks. If a final average greater than or equal to 80 and less than 90 is needed to obtain a final grade B in a course, what range of marks on the fith (last)

examination will result in Hamid receiving B in course?

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22. In an experiment, a solution of hydrochloric acid is to be kept between $30o$ and $35o$ Celsius. What is the range of temperature in degree Fahrenheit if conversion formula is given by C = $\frac{5}{9}$ (F 32), where C and F represent temperature in deg

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23. A manufacturer has 600 litres of a 12% solution of acid. How many litres of a 30% acid solution must be added to it so that acid content in the resulting mixture will be more than 15% but less than 18%?

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24. Shanta is three times of the age of her son. She has a grandson who is half of the age of her son and her granddaughter is the

difference of one-third of the age of her son and 3. compare the age of her grandchildren and write who is older in the form of an inequation.

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Exercise 6 A Short Answer Type Questions

1. Solve the equation:

(i) $3x - 9 < 0$

(ii) $-5x + 25 \leq 0$

(iii) $7x + 4 > 39$

(iv) $6x - 18 \geq 0$.

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2. Solve the equation:

(i) $x + 10 > 4x - 5$

(ii) $8x - 2 > 5x$.

(iii) $3x - 10 > 5x + 1$.

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3. Solve the equation:

(i) $x + 12 < 4x - 2.$

(ii) $4x - 7 < 3 - x.$

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4. Solve the inequation:

$-(x - 3) + 4 > -2x + 5$

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5. Solve the equation:

(i) $3x + 17 \leq 2(1 - x)$.

(ii) $-2x + 6 \leq 5x - 4$

(iii) $3(x - 1) \leq 2(x - 3)$.

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6. Solve the inequalities for real x :

$37 - (3x + 5) \geq 9x - 8(x - 3)$

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7. Solve the equation:

(i) $\frac{x-5}{x+2} < 0$

(ii) $\frac{6x-5}{4x+1} < 0$

(iii) $\frac{x-3}{x+5} > 0$

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8. Solve the following linear inequation in R: $\frac{5x-6}{x+6} < 1$

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9. Solve the equation:

(i) $\frac{7x-5}{8x+3} > 4$

(ii) $\frac{x}{x-5} > \frac{1}{2}$.

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10. Solve the equation:

(i) $\frac{3x-2}{5} \leq \frac{4x-3}{2}$

(ii) $\frac{2(x-1)}{5} \leq \frac{3(2+x)}{7}$

(iii) $\frac{3(x-2)}{5} \leq \frac{5(2-x)}{3}$

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11. Solve the equation:

(i) $\frac{x-1}{3}+4<\frac{x-5}{5}-2$

(ii) $\frac{5-2x}{3}<\frac{x}{6}-5.$

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12. Solve the equation:

(i) $x+\frac{x}{2}+\frac{x}{3}<11$

(ii) $\frac{x}{3}>\frac{x}{2}+1.$

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13. Solve the equation:

(i) $\frac{5x}{2} + \frac{3x}{4} \geq \frac{39}{4}$

(ii) $\frac{5 - 2x}{3} \leq \frac{x}{6} - 5.$

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14. Solve the equation:

$\frac{4 + 2x}{3} \geq \frac{x}{2} - 3.$

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15. $\frac{x}{4} < \frac{(5x-2)}{3} - \frac{(7x-3)}{5}$

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16. Solve the following linear inequation in R: $\frac{2x+3}{5} - 2 < \frac{3(x-2)}{5}$

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17. Solve the equation:

(i) $-8 \leq 5x - 3 < 7$

(ii) $2 \leq 3x - 4 \leq 5$

(iii) $-2 \leq 4 - \frac{7x}{2} \leq 18.$

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18. Solve the equation:

(i) $-5 \leq \frac{5 - 3x}{2} \leq 8$

(ii) $-15 < \frac{3(x - 2)}{5} \leq 0.$

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19. Solve the inequalities :

$$7 \leq \frac{(3x + 11)}{2} \leq 11$$

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Exercise 6 A Long Answer Type Questions

1. Solve the following inequalities and show the graph of the solution set on number line:

(i) $3x - 2 < 2x + 1$

(ii) $5x - 3 \geq 3x - 5.$

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

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3. Solve the following inequalities and show the graph of the solution set on number line:

Solve:

(a) $-12x > 30$

(b) $30x < 200$, when:

(i) x in a natural number.

(ii) x is an integer.

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4. Solve: (a) $3x + 8 > 2$

(b) $5x - 3 < 3x + 1$ when:

(i) x is an integer

(ii) x is a real number.

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Exercise 6 B Short Answer Type Questions

1. Solve the system of inequation:

$x + 3 > 0, 2x < 14$

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2. Solve the system of inequation:

$2x + 5 \leq 0, x - 3 \leq 0$

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3. Solve the system of inequation:

$x + 2 > 11, 2x, = 20$

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4. Solve the system of inequation:

$2x - 7 < 11, 3x + 4 \leftarrow 5$

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5. Solve the following system of inequations:

$3x - 1 \geq 5, x + 2 > -1$

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6. Solve the system of inequation:

$4 - 5x > -11, 4x + 11 \leq -13$

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7. Solve the following system of inequations:

$4x - 5 < 11, \ -3x - 4 \geq 8.$

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8. Solve the system of inequation:

$-4x + 1 \geq 0, 3 - 4x < 0$

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9. Solve the following system of inequations:

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

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Exercise 6 B Long Answer Type Questions

1. Solve the system of inequation:

$4x + 3 \geq 2x + 17, 3x - 5 \leftarrow 2$

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2. Solve the system of inequation:

$x + 2 \leq 5, 3x - 4 > -2 + x$

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3. Solve the following system of inequation

$4x + 5 > 3x, -(x + 3) + 4 \leq -2x + 5$

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4. Solve the following system of inequations:

(i) $3x - 7 > 2(x - 6), 6 - x > 11 - 2x$

(ii) $3x - 7 < 5 + x, 11 - 5x \leq 1.$

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5. Solve the following systems of inequalities for all ξnR

$5(2x-7)-3(2x+3) \leq 0$ and

$2x+19 \leq 6x+45.$

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6. Solve the following systems of linear inequations:

$5x-7<3(x+3), 1-\frac{3x}{2} \geq x-4$

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7. Solve the following system of inequations:

$$\frac{4x}{3} - \frac{9}{4} < x + \frac{3}{4}, \frac{7x-1}{3} - \frac{7x+2}{6} > x.$$

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8. Solve the following system of inequations:

$$-2 - \frac{x}{4} \leq \frac{1+x}{3}, 3 - x < 4(x-3).$$

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9. Solve the system of inequation:

$7x - 8 < 4x + 7, \; -\frac{x}{2} > 4$

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Exercise 6 C Long Answer Type Questions

1. Represent the following inequations graphically in two dimensional plane and hence solve them:

(i) $x > -3$

(ii) $x < -3$

(iii) $x \leq -3$

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2. Represent the following inequations graphically in two dimensional plane and hence solve them:

(i) $y < -2$

(ii) $y < 2$

(iii) $y \geq 2.$

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3. Solve $3x - 6 \geq 0$graphically in two dimensional plane.

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4. Represent the following inequations graphically in two dimensional plane and hence solve them:

(i) $|x| < 2$

(ii) $|y| \geq 3.$

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5. Represent the following inequations graphically in two dimensional plane and hence solve them:

$2x + y \geq 6$

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6. Represent the following inequations graphically in two dimensional plane and

hence solve them:

$2x - 3y > 6$

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7. Represent the following inequations graphically in two dimensional plane and hence solve them:

$3x + 2y > 6$

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8. Solve the inequalities graphically in two-dimensional plane: $3x + 4y \leq 12$

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9. $3y - 5x < 30$

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10. Solve the inequations graphically in XY-plane: $x - 2y + 4 \leq 0$

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11. Represent to solution set of each of the following inequation graphically in two dimensional plane: $x \leq 8 - 4y$

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12. Represent the following inequations graphically:

$x - 2y \leq -1$

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13. Solve the following inequation graphically:

$2x + 3y \leq 6$

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14. Represent the following inequations graphically:

$y + 8 \geq 2x.$

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Exercise 6 D Short Answer Type Questions

1. Draw the graphs of the following inequations: $2x + 3y \leq 12$

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Exercise 6 D Long Answer Type Questions

1. Draw the diagrams of the solution sets of the following linear constraints:

$2x + y - 3 \geq 0, x - 2y + 1 \leq 0, x \geq 0, y \geq 0$

.

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2. Draw the diagrams of the solution sets of the following linear constraints:

$x + y \leq 5, 4x + y \geq 4, x + 5y \geq 5, x \leq 4, y \leq 3$

.

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3. Draw the diagrams of the solution sets of the following linear constraints:

$x + y \geq 1, y \leq 5, x \leq 6, 7x + 9y \leq 63, x, y \geq 0$

.

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4. Draw the diagrams of the solution sets of the following linear constraints:

$3x + 4y \geq 12, x + 2y \leq 3, x \leq 3, x \geq 0, y \geq 1$

.

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5. Show that the solution set of the following linear inequations is empty set:

$x - 2y \geq 0,\ 2x - y \leq -2,\ x \geq 0,\ y \geq 0$

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6. Solve the following systems of inequations graphically

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

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7. Find the region when the following inequations:

$x + y \leq 0, 2x + y \leq 4, x \geq 0$ and $y \leq 2$

hold good.

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Exercise 6 E Long Answer Type Questions

1. Find all pairs of consecutive odd natural numbers, both of which are larger than 10, such that their sum is less than 40.

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

3. the marks obtained by a student of class 12 in first terminal and second terminal are 62 and 48 respectively. Find the number of minimum marks he should get in the annual examination to have an average of ast least 60 marks.

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4. To receive Grade A in a course, one must obtain an average 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 m fifth examin

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5. The longest side of a triangle is at least 61 cm, find the minimum length of the shortest side.

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6. The water acidity in a pool is considered normal when the average pH reading of three daily measurements is between 7.2 and 7.8. If the first tow pH reading are 7.48 and 7.85, find the range of pH value for the third reading that will result in the acidity level being normal.

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7. 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?

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8. In drilling world's deepest hole it was found that the temperature T in degree celcius, x Km below the earth's surface was given by $T = 30 + 25(x - 3), 3 \leq x \leq 15.$ At what depth will the temperature be between $155^\circ C$ and $205^\circ C$?

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9. A company manufactures cassettes and its cost eqution for a week $C = 300 + 1.5x$ and its revenue equation is $R = 2x$, where x is the number of cassettes sold in a week. How many cassettes must be sold for the company to relize a profit?

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Objective Type Questions Multiple Choice Questions A

1. Find the solution set of the inequation $\frac{|x-2|}{(x-2)} > 0, \neq 2.$

A. $x \in [2, \infty)$

B. $x \in (2, \infty)$

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

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

Answer: B

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2. The length of a rectangle is three times the breadth. If the minimum perimeter of the rectangle is 160 cm, then

A. breadth $> 20cm$

B. length $< 20cm$

C. breadth ≥ 20cm

D. length $\leq 20cm$

Answer: C

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3. If $|x+3| > 10$, then

A. $x \in (-13, 7)$

B. $x \in (-13, 7)$

C. $x \in (-\infty, -13] \cup [7, \infty)$

D. $x \in (-\infty, -13] \cup [3, \infty)$

Answer: D

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4. 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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5. 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

6. If x is a real number and $|x| < 3$, then

A. $-3 \leq x \leq 3$

B. $-3 < x < 3$

C. $x \leq 3$

D. $x \geq 3$.

Answer: B

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7. If x and a area real numbers such that $a > 0$ and $|x| > a$ then:

A. $x \in (-a, a)$

B. $x \in (-a, a)$

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

D. $x \in (-a, \infty)$

Answer: C

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8. The solution set of $-5x + 25 \leq 0$ is

A. $(5, \infty)$

B. $(-5, \infty)$

C. $(-\infty, 5)$

D. $(-\infty, -5)$

Answer: A

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9. The solution set of $4x - 7 < 3 - x$ is:

A. $(-2, \infty)$

B. $(-\infty, 2)$

C. $(-2, 2)$

D. $(2, \infty)$

Answer: B

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10. The solution set of $x + 3 > 0, 2x < 14$ is:

A. $[-3, 7]$

B. $(-3, -7)$

C. $(-3, 7)$

D. $[3, -7]$.

Answer: C

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

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

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

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

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

Answer: A

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12. If $\frac{|x-3|}{x-3} \geq 0$, then

A. $x \in [3, \infty)$

B. $x \in (3, \infty)$

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

D. $x \in (-\infty, 3)$

Answer: C

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13. If $|x+3| \geq 10$, then:

A. $x \in (-13, 7)$

B. $(-13, 7)$

C. $x \in (-\infty, -13] \cup [7, \infty)$

D. $x \in (-\infty, -13) \cup (7, \infty)$

Answer: C

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14. If $|z+4| \leq 9$, then the maximum value of $z+1$ is:

A. 10

B. 6

C. 0

D. 4

Answer: B

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Objective Type Questions Fill In The Blanks B

1. Solve:

$$\frac{|x-3|}{x-3} > 0, x \in R$$

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2. If $-3x + 16 < -14$, then $x \in$ _____.

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3. $x + \frac{x}{2} + \frac{x}{3} < 11$

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4. For integer x, the solution of $3x + 8 > 2$ is_____.

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5. Solve the system of inequation:

$2x + 5 \leq 0, x - 3 \leq 0$

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6. Solve $y < 2$graphically.

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

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Objective Type Questions True False Questions C

1. If $-3x+17<-13,\ then\ x\in(10,\infty)$ b. $x\in[10,\infty)$ c. $x\in(-\infty\infty,\ 10]$ d. $x\in[-10,10)$

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2. State True or False: The solution set of $|x+2| \leq 5$ is $[-7, 3]$.

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

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4. Solve $\frac{5-2x}{3} \leq \frac{x}{6} - 5$.

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5. Solve the system of inequalities : $3x - 7 < 5 + x \ldots$ (i) $11 - 5x \leq 1 \ldots$ (ii) and represent the solutions on the number line.

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Objective Type Questions Very Short Answer Type Questions D

1. Find the solution set of $x + \frac{1}{2}x \geq 2$.

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2. Find the solution set of $x + 10 > 4x - 5$.

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3. Find the solution set of $3x - 10 > 5x + 1$.

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4. Find the solution set of $\frac{4 - 2x}{3} > \frac{x}{2} - 3$.

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5. Find the solution set of $3x - 1 \geq 5, x + 2 > -1.$

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6. $5x + 1 > -24, 5x - 1 < 24$

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7. Find the solution set of $4x - 5 < 11, \ -3x - 4 \geq 8.$

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8. Find the solution set of $\frac{x^2}{x - 3} > 0.$

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9. Find the solution set of $(x - 4)\left(x^2 - 2x + 1\right) > 0.$

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10. Find the solution set of $\left|\frac{1}{x}-2\right|>4$.

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11. The solution of $\left|x+\frac{1}{x}\right|>2$ is

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Ncert Exercise 6 1

1. Solve $24x < 100$, when (i) x is a natural number. (ii) x is an integer.

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2. Solve $-12x > 30$, when:

(i) x is a natural number

(ii) x is an integer.

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3. Solve 5x - 3 lt 7, when

(i) x is integer.

(ii) x is a real number.

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4. Solve 3x + 8 gt 2, when

(i) x is an integer.

(ii) x is a real number.

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5. 4x + 3 lt 5x + 7

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6. $3x - 7 > 5x - 1$

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7. $3(x - 1) \leq 2(x - 3)$

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8. $3(2-x) \geq 2(1-x)$

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9. $x + \frac{x}{2} + \frac{x}{3} < 11$

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10. $\frac{x}{3} > \frac{x}{2} + 1$

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

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12. $\frac{1}{2}\left(\frac{3x}{5}+4\right) \geq \frac{1}{3}(x-6)$

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13. $2(2x+3)-10 < 6(x-2)$

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14. Solve the inequalities for real x :

$37 - (3x + 5) \geq 9x - 8(x - 3)$

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15. $\frac{x}{4} < \frac{(5x - 2)}{3} - \frac{(7x - 3)}{5}$

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16. $\frac{(2x - 1)}{3} \geq \frac{(3x - 2)}{4} - \frac{(2 - x)}{5}$

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17. Solve the inequalities and show the graph of the solution in each case on number line :

$3x \quad 2 \quad < \quad 2x \quad + \quad 1$

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18. Solve the inequalities and show the graph of the solution in each case on number line :

$5x - 3 \geq 3x - 5$

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19. Solve the inequalities and show the graph of the solution in each case on number line :

$3(1x) < 2(x + 4)$

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20. Solve the inequalities and show the graph of the solution in each case on number line :

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

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

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22. To receive Grade A in a course, one must obtain an average 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 m fifth examin

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

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

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Revision Exercise

1. Solve: $-2 \leq 6x - 1 < 2$.

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2. Solve the inequations

$$0 < \frac{-x}{3} < 1.$$

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3. Solve the inequations

(i) $-3 \leq 4 - 7x < 18$

(ii) $-12 < 3x - 5 \leq -4$

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4. Solve the inequations

(i) $-2 < 1 - 3x < 7.$

(ii) $-7 < 2x - 3 < 7.$

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5. Solve the inequation :

$6 \leq -3(2x - 4) < 12$

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6. Solve the inequations

(i) $-12 \leq 4 - \frac{3x}{5} \leq 2.$

(ii) $-15 \leq \frac{3(x-2)}{5} \leq 0.$

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7. Solve the inequation $\frac{2}{x-3} < 0$

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8. Solve: $|x+1| \geq 3.$

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9. Solve the following inequations:

(i) $|3x - 2| \leq \frac{1}{2}$

(ii) $\left|x + \frac{1}{4}\right| > \frac{7}{4}$

(iii) $\left|\frac{3x - 4}{2}\right| \leq \frac{5}{12}$

(iv) $|4 - x| + 1 < 3.$

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10. A plumber can be paid under two schemes as given below: I Rs. 600 and Rs 50 per hour II.

Rs. 170 per hour. If the job takes n hours, for wht values of n does the scheme I gives the plumber the better wages?

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11. Sketch the graph of the solution sets of the following system of inequations:

$x + y \geq 5, 2x + 3 \geq 3y, 0 \leq x \leq 4, 0 \leq y \leq 2$

.

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12. In the following, shade the region, where the following inequations hold. Also find the vertices of the region so formed:

$x \geq 2, x \leq 8, y \geq -4, y \leq x + 2, 2x + y \leq 14$

.

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13. Find the region when the following inequations:

$x + y \leq 6, x \geq y, x \geq 0, y \leq 0$ hold good.

Find the coordinates of the vertices of the region.

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Chech Your Understanding

1. Define an inequations:

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2. If $\frac{a}{b} \geq \frac{c}{d}$, then $ad \leq bc$ if b and d are of the same sign. Is it true?

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3. Solve graphically:

$|x| \leq 2.$

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4. Solve graphically:

$3x + 2y > 6.$

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5. Solve graphically:

$x \geq 3, y \geq 2.$

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6. Solve graphically:

$x + y \geq 5, x - y \leq 3.$

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7. Solve: $-2 \leq 6x - 1 < 2.$

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8. Solve: $\left|x + \frac{1}{4}\right| > \frac{7}{4}.$

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9. Solve $7x + 3 < 5x + 9$. Show the graph of the solutions on number line.

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10. Solve: $5x - 15 \geq 0$.

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Chapter Test

1. If $\frac{|x-1|}{x-2} > 0$, then:

A. $x \in [2, \infty)$

B. $x \in (2, \infty)$

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

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

Answer: B

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

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

B. $(-7, 11)$

C. $[11, -7]$

D. $[7, 11]$

Answer: A

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

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

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5. Draw the graph of $x + y \leq 6, x + y \geq 4$.

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6. Solve each of the following inequations and represent the solution set on the number line.

$$\frac{x}{4} < \frac{(5x-2)}{3} - \frac{(7x-3)}{5}, \quad \text{where} \quad x \in R.$$

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7. Solve 3x + 8 gt 2, when

(i) x is an integer.

(ii) x is a real number.

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8. Solve graphically

$2x + y \geq 4, x + y \leq 3, 2x - 3y \leq 6.$

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9. Solve:

$|x + 1| + |x| > 3, x \in R$

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10. Find all pairs of consecutive odd positive integers both of which are smaller than 10

such that their sum is more than 11.

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11. Find the region enclosed by the following inequations:

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

Also, find the ordered pairs of the vertices of the region.

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12. While drilling a hole in the earth, it was found that the temperature $(T^\circ C)$ at x km below the surface of the earth was given by T = 30 + 25(x - 3), when $3 \leq x \leq 15$.

Between which depths will the temperature be between $200^\circ C$ and $300^\circ C$?

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