Class 11 Mathematics · Chapter 5: Linear Inequalities

Worksheet · 20 marks · about 40 minutes · based on NCERT

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1. If $p < q$, which of the following is true? [1]

(a) $-4p < -4q$ (b) $-4p > -4q$

(c) $p - 4 > q - 4$ (d) $\frac{p}{4} > \frac{q}{4}$

2. On a number line, the solution of $x > -2$ is shown by [1]

(a) a dark circle at -2 and the line darkened to the right (b) an open circle at -2 and the line darkened to the right

(c) an open circle at -2 and the line darkened to the left (d) a dark circle at -2 and the line darkened to the left

3. Which of the following is a linear inequality in one variable? [1]

(a) $x^2 - 4 < 0$ (b) $3x + 2y \geq 7$

(c) $5 - 2x > 0$ (d) $4x - 7 = 9$

4. A goods lift in a Surat warehouse can carry at most 500 kg. The operator weighs 68 kg and each carton weighs 24 kg. The greatest number of cartons the operator can take up with him in one trip is [1]

(a) 17 (b) 18

(c) 20 (d) 19

5. Adding $x - 7$ to both sides of $3 - x > 7$ gives [1]

(a) $-4 > x$ (b) $-4 < x$

(c) $x > 4$ (d) $-4 > -x$

6. Find how many integers satisfy both $3x - 2 < 10$ and $5x + 3 \geq 2x - 6$. [2]

7. Find k if the solution set of $3 - 2x \leq k$, for real x, is $[-3, \infty)$. How is this set shown on the number line? [2]

8. Show that no real number x satisfies both $2x - 5 > 3$ and $3 - x \geq -1$. [2]

9. Aman solved $\frac{x+2}{3} - \frac{x-1}{4} \geq \frac{x}{6}$ as follows. Step 1: $4(x + 2) - 3(x - 1) \geq 2x$. Step 2: $4x + 8 - 3x - 3 \geq 2x$. Step 3: $x + 5 \geq 2x$, so $x \leq 5$. Find the step with the error and solve the inequality correctly. [3]

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10. A gym in Lucknow offers two plans. Plan A: ₹ 1500 to join and ₹ 600 a month. Plan B: no joining fee and ₹ 850 a month. Form an inequality and find the least number of whole months of membership for which Plan A costs less than Plan B. [3]

11. Find the least and the greatest integers satisfying $-4 \le \frac{3 - 2x}{5} < 1$, and the number of integers that satisfy it. [3]