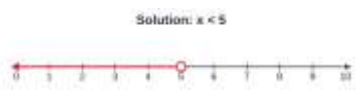
INDIAN SCHOOL AL WADI AL KABIR
WORKSHEET 2026-27

CLASS XI **LINEAR INEQUALITIES_DTQ_WORKSHEET**

	Questions of 2 mark each
Q.1.	Solve the inequality $5x - 8 < 2x + 7$ and represent the solution on a number line for $x \in R$
Q.2.	Solve for x: $\frac{x}{4} < \frac{5x-2}{3} - \frac{7x-3}{5}$.
Q.3.	Solve for x :$5 \leq \frac{2x+7}{3} \leq 9$
Q.4.	Find the natural number x satisfying inequations: $x + 3 < 4 + 2x$ and $5x - 3 < 4x - 1$.
	Questions of 3 marks each
Q.5.	Solve $\|x - 3\| \leq 5$ and represent on number line
Q.6.	A student needs an average of at least 75 marks in four tests to qualify for a scholarship. If his marks in the first three tests are 70, 82, and 68, what is the minimum marks he must score in the fourth test?
Q.7.	Solve the following system of inequations: $4x - 5 > 3(x - 4), 8 - x > 13 - 3x$
Q.8.	Find all pairs of consecutive odd integers, both larger than 10, such that their sum is less than 30.
Q.9.	The longest side of the rectangle is five times the shortest side. If the perimeter of the rectangle is at least 120 cm. Find the minimum value of shortest side. (3 marks)
Q.10.	The 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. A group of 8 -year-old children has a mental age range of $6 \leq$ MA ≤ 10 years. Find the range of their IQ scores.
	Questions of 5 marks each
Q.11.	Solve the following system of linear inequalities $\frac{4x}{3} - \frac{9}{4} < x + \frac{3}{4}$ and $\frac{7x-1}{3} - \frac{7x+2}{6} > x$.

Q.12.	How many liters of water will have to be added to 800litre**s** of a 40% solution of acid so that the resulting mixture will contain more than 16 % but less than 20% acid content**?**
Q.13.	Solve the system of inequalities: $3x - 7 < 5 + x$ $11 - 5x \leq 1$ and represent the solution on the number line.
	CASE STUDY QUESTION (4 MARK)
Q.14.	A company manufactures specialized electronic components. The cost function is $C(x) = 20x + 4000$ and the revenue function is $R(x) = 60x$, where x is the number of components produced and sold. (i) Write the inequality for the company to realize a profit. (ii) Find the minimum number of components to be sold to avoid a loss. (iii) If the company wants a profit of at least ₹10,000, how many components must be sold?
Q.15.	Case Study: In a chemical experiment, a solution must be kept between 30°C and 35°C. The formula for conversion from Celsius (C) to Fahrenheit (F) is $C = \frac{5}{9}(F - 32)$. (i) Write the range of temperature in Fahrenheit as a compound inequality. (ii) Solve the inequality to find the range in Fahrenheit. (iii) If the thermometer only reads in Fahrenheit, what are the lower and upper limits to nearest whole number?

ANSWER KEY					
Q.1.		Q.6.	80	Q.11.	$4 < x < 9$
Q.2.	$(4, \infty)$	Q.7.	$\left(\frac{5}{2}, \infty\right)$	Q.12.	$800 < x < 1200$

Q.3.	[4,10]	Q.8.	(11,13)	Q.13.	$2 \leq x < 6$
Q.4.	1	Q.9.	$x \geq 10$	Q.14.	(i) $x > 100$ (ii) 100 components (iii) 350 components
Q.5.	$[-2,8]$	Q.10.	$75 \leq \text{IQ} \leq 125$	Q.15.	(i) $30 \leq \frac{5}{9}(F - 32) \leq 35$ (ii) $86 \leq F \leq 95$ (iii) Lower limit = 86°F, Upper limit =95°F