INDIAN SCHOOL DARSAIT
DEPARTMENT OF MATHEMATICS

Subject : Mathematics   Topic : Linear Inequalities   Date of Worksheet :6/5/2019

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Name of the Student :_____   Class & Division : XI   Roll Number : __

S.No.	Questions	Marks

Section A (Basics):

Rule 1: Same number may be added to or subtracted from both sides of an inequation without changing the sign of inequality.

Rule 2: Both sides of an inequation can be multiplied or divided by the same positive real number without changing the sign of inequality. However, the sign of inequality is reversed when both sides of an inequation are multiplied or divided by a negative number.

Section B :

1. Solve $5x - 3 < 3x + 1$ when i) x is a real number ii) x is an integer iii) x is a natural number   **4**

2. Solve the following system of inequalities   **4**

   i) $\dfrac{2x - 3}{4} + 6 \geq 2 + \dfrac{4x}{3}$

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

3. In an experiment, a solution of hydrochloric acid is to be kept between 30° and 35° Celsius. What is the range of temperature in degree Fahrenheit if conversion formula is given by   **4**

   $C = \dfrac{5}{9}(F - 32),$

   where C and F represent temperature in degree Celsius and degree Fahrenheit respectively?

4. Solve the following system of in equations graphically   **6**
    $2x + y \leq 24; x + y \leq 11; 2x + 5y \leq 40; x \geq 0 ; y \geq 0$

5. Solve the following system of inequalities graphically   **6**
    $4x + 3y \leq 60, \ y \geq 2x, \ \ x \geq 3, \ \ x \geq 0, \ \ y \geq 0$

6.   Solve the following system of inequalities graphically   6
      $x + y \leq 5$, $4x + y \geq 4$, $x + 5y \geq 5$, $x \leq 4$, $y \leq 3$

7.   Find the solution set of the following systems of linear inequalities   6
      $x - 2y \leq 3$, $3x + 4y \geq 12$, $x \geq 0$, $y \geq 1$.

Section C (Hots):

1.   A manufacturer has 600 litres of a 12% solution of acid.How many litres of a 30%   6
      acid solution must be added to it so that acid content in the resulting mixture will
      be more than 15% but less than 18% ?

2.   Solve : $\dfrac{|x-1|}{x+2} < 1$ 6