

SWOT INSTITUTE

LINEAR INEQUATIONS

XI-TEST

Time : 1 hr.

1. 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 $C = \frac{5}{9}$

$(F - 32)$, where C and F represent temperature in degree Celsius and degree Fahrenheit, respectively.

2. 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% ?

3. Solve inequalities and represent the solution graphically on number line.

$$5(2x - 7) - 3(2x + 3) \leq 0, \quad 2x + 19 \leq 6x + 47.$$

4. A solution is to be kept between 68°F and 77°F . What is the range in temperature in degree Celsius (C) if the Celsius /Fahrenheit (F) conversion formula is given by

$$F = \frac{9}{5} C + 32 ?$$

5. A solution of 8% boric acid is to be diluted by adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid. If we have 640 litres of the 8% solution, how many litres of the 2% solution will have to be added ?

6. 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 ?

7. 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. If $80 \leq IQ \leq 140$ for a group of 12 years old children, find the range of their mental age.