1. The water acidity in a pool is considered normal when the average pH reading of three daily measurements is between 8.2 & 8.5. If the first two pH readings are 8.48 & 8.35, find the range of pH value for the third reading that will result in the acidity level being normal.

Sol^n

given, first pH value = 8.48

Second pH value = 8.35

let third pH value = x

given that average pH value lies between

8.2 & 8.5

average of all pH's = $\dfrac{8.48 + 8.35 + x}{3}$

⟹ $8.2 < \dfrac{8.48 + 8.35 + x}{3} < 8.5$

⟹ $3 \times (8.2) < 16.83 + x < 3 \times 8.5$

⟹ $24.6 < 16.83 + x < 25.5$

⟹ $7.77 < x < 8.67$

Thus, third pH value lies between 7.77 & 8.67