## A Review of pH and its Relationship to $[H^+]$[i]

Bio390

"The equilibrium states of chemical reactions in which $H^+$ is involved are determined by the effective concentrations of the reacting substances, so that $[H^+]$ is what we must think about and deal with if we wish to analyze quantitatively and understand systems of such reactions. From this viewpoint, *p*H is a very **strange** and **confusing doubly nonlinear transformation** of $[H^+]$."
The above quote is from, P.A. Stewart, How to Understand Acid-Base. 1981. Elsevier, New York.

a. The concentration of $[H^+]$ in arterial plasma is 40 nano molar (nM)
(= to $\frac{40 \times 10^{-9} \text{ mols}}{\text{liter}}$). Estimate pH of arterial plasma.

b. Estimate the pH of arterial plasma if $[H^+]$ doubled in arterial plasma.

c. In humans, arterial plasma has a pH of 7.40 while that of venous plasma is 7.36. Which plasma is more acidic? How many times more acidic?

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