Friday - September 19, 2014

$\beta = 10 \log \frac{I}{I_0}$

$I_0 = 10^{-12}$

(47) a) $I = 10^{-10}$

$\beta = 10 \log \frac{10^{-10}}{10^{-12}}$

$= 10 \log 10^2$

$= 10(2)$

$= \boxed{20}$

(49) B: (88) → (72)

% decr in I?

(88) $= 10 \text{Log} \frac{I}{10^{-12}}$

$8.8 = \text{Log} \frac{I}{10^{-12}}$

$\frac{I}{10^{-12}} = 10^{8.8}$

$I = 0.000630957344 5$ (A)

(72) $= 10 \text{Log} \frac{I}{10^{-12}}$

$7.2 = \text{Log} \frac{I}{10^{-12}}$

$\frac{I}{10^{-12}} = 10^{7.2}$

$I = 0.0000158\ldots$ (B)

$\frac{A-B}{A} = .9749 \approx$ 97.49%

$$\text{Log}_b\, a = \frac{\text{Log}\, a}{\text{Log}\, b}$$

$$pH = -\text{Log}[H^+]$$

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$[H^+] = 2.3 \times 10^{-5}$

$$ph = 10.5$$

$$pH = -\log_{10}[H^+]$$

$$10.5 = -\log_{10}[H^+]$$

$$-10.5 = \log_{10}[H^+]$$

$$[H^+] = 10^{-10.5}$$