MATH REVIEW QUESTIONS - SOLUTIONS

1. (a) $[x] = \left(\frac{m}{s}\right)$

(b) $[x] = \frac{J \cdot m}{m/s} = \frac{(kg \cdot m^2/s^2) \cdot m}{m/s} = (kg \cdot m^2/s)$

or $\frac{J \cdot m}{m/s} = \frac{J \cdot m}{m/s} \cdot \frac{s/m}{s/m} = (J \cdot s)$ or

(c) $[x] = \left(\frac{kg \cdot m/s^2}{kg/m}\right)^{1/2} = \left(\frac{m/s^2}{\frac{1}{m}} \cdot \frac{m}{m}\right)^{1/2} = (m^2/s^2)^{1/2}$

$= (m/s)$

2. (a) $134{,}000 = (1.34 \times 10^5)$

(b) $.01936 = (1.94 \times 10^{-2})$

3. (a) $2.9987 \times 10^1 = (30.0)$ (b) $3.61 \times 10^{-3} = (0.00361)$

4. (a) $x = \log(100) = (2)$

(b) $x = 10 \log(2) = (3.01)$

(c) $3 = \log(x) \Rightarrow 10^3 = x \Rightarrow (x = 1000)$

(d) $68.8 = 10 \log\left(\frac{x}{20}\right)$

$\frac{68.8}{10} = \log\left(\frac{x}{20}\right)$

$6.88 = \log\left(\frac{x}{20}\right)$

$10^{6.88} = \frac{x}{20}$

$x = 20\left(10^{6.88}\right) = 20(7.59 \times 10^6) = (1.52 \times 10^8)$

(e) $10^{2.5x} = 5.62 \times 10^{-3}$

$\log(10^{2.5x}) = \log(5.62 \times 10^{-3})$

$2.5x = -2.25$ $\rightarrow (x = -0.900)$