

Constants and Relations for PH 221 Quizzes and Exams

$$g = 9.80 \text{ m/s}^2$$

$$G = 6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$$

$$e = 1.6 \times 10^{-19} \text{ C}$$

$$\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2/\text{Nm}^2$$

$$k = \frac{1}{4\pi\epsilon_0} = 8.99 \times 10^9 \text{ Nm}^2/\text{C}^2$$

$$\mu_0 = 4\pi \times 10^{-7} \text{ T m/A}$$

$$c = 2.998 \times 10^8 \text{ m/s}$$

$$m_e = m_{e^-} = 9.11 \times 10^{-31} \text{ kg}$$

$$m_p = 1.67 \times 10^{-27} \text{ kg}$$

$$V_{\text{sphere}} = \frac{4}{3}\pi r^3$$

$$A_{\text{sphere}} = 4\pi r^2$$

$$A_{\text{cylinder}} = 2\pi RL$$

$$A_{\text{circle}} = \pi r^2$$

$$2\pi \text{ rad} = 360^\circ$$

$$1 \text{ hr} = 3600 \text{ s}$$

$$1 \mu\text{C} = 10^{-6} \text{ C}$$

$$1 \text{ km} = 10^3 \text{ m}$$

$$1 \text{ m} = 10^2 \text{ cm}$$

$$1 \text{ kg} = 10^3 \text{ g}$$

$$1 \text{ cm} = 10 \text{ mm}$$

$$1 \text{ nm} = 10^{-9} \text{ m}$$

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