

Answers Exam 3 2008

$$1. \quad \boxed{\begin{aligned} r &= \pm \frac{W}{2} \\ r &= \pm 2W \end{aligned}}$$

$$2. \quad a) \quad \vec{B} = \frac{\mu_0 i R^2}{2(R^2 + x^2)^{3/2}} \vec{i}_x$$

$$b) \quad \vec{F} = 0$$

$$3. \quad a) \quad Q(t) = Q_0 e^{-\frac{t}{RC}}$$

$$b) \quad Q(t) = CV \left(1 - e^{-\frac{t}{RC}}\right)$$

$$4. \quad i = \frac{HWA}{2g(H+W)} (24t^3 + 7) \quad \underline{\text{CCW}}$$