Answers Exam 3

1. $B_{tot} = \frac{\mu_0 i}{8b} \otimes + \frac{\mu_0 i}{8a} \odot$

2. $\vec{B} = \begin{cases} 0, & r < a \\ \frac{\mu_0 i}{2\pi r} \frac{r^2 - a^2}{b^2 - a^2}, & a < r < b \\ \frac{\mu_0 i}{2\pi r}, & r > b \end{cases}$

$$\vec{F} = \frac{3 i^2 \mu_0 W}{4\pi b} \uparrow$$

3. $Q(t) = C(V + BW\cos\theta v_0)\left(1 - e^{-\frac{t}{RC}}\right)$

4. $i = \frac{\mu_0 i_0}{2\pi R} \frac{WH v_0}{y(y+H)}$

$$R = \frac{\rho 2(H+W)}{A}$$

$$y = P + v_0 t$$