HW 1

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1.

$$\mathcal{R}_1 = \frac{30}{(5)(5)(800)(4\pi E-7)} = 1190\ A\cdot turns/Wb$$
$$\mathcal{R}_2 = \frac{55}{(15)(5)(800)(4\pi E-7)} = 597\ A\cdot turns/Wb$$
$$\mathcal{R}_3 = \frac{30}{(10)(5)(800)(4\pi E-7)} = 729\ A\cdot turns/Wb$$
$$\Rightarrow \mathcal{R}_{eq} = 2529\ A\cdot turns/Wb$$
$$i = \frac{0.005\times 2529}{500} = 25.2\ mA$$

$$B_{top} = \frac{0.005}{(0.15)(0.05)} = 0.667\ T$$
$$B_{right} = \frac{0.005}{(0.05)(0.05)} = 2\ T \tag{1}$$