Question 1

Part a.

$$a p^{\varepsilon} = \beta p^{n}$$

$$\frac{a}{\beta} = \frac{p^{n}}{p^{\varepsilon}}$$

$$\frac{a}{\beta} = p^{n-\varepsilon}$$

$$\ln a - \ln \beta = n - \varepsilon \ln p$$

$$\ln p = \frac{\ln a - \ln \beta}{n - \varepsilon}$$

$$p = \left[\frac{a}{\beta}\right]^{\frac{1}{n-\varepsilon}}$$

at $a = 0.5$, $\beta = 2$ and $n - \varepsilon = 2.5$

$$p = 0.25^{0.4} \approx 0.5743$$