$$\mu_0 + Z_\alpha \frac{S}{\sqrt{n}} = \mu_1 - Z_{1-\beta} \frac{S}{\sqrt{n}}$$

$$\mu_1 - \mu_0 = \frac{S}{\sqrt{n}} \left(Z_\alpha + Z_{1-\beta} \right)$$

$$\sqrt{n} = \frac{S \left(Z_\alpha + Z_{1-\beta} \right)}{\mu_1 - \mu_0}$$

$$n = \left(\frac{S \left(Z_\alpha + Z_{1-\beta} \right)}{\mu_1 - \mu_0} \right)^2$$