

Sample Size $\hat{=}$ Margin of Error

$$E = z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$$

square

$$E^2 = z_{\alpha/2}^2 \cdot \frac{\sigma^2}{n}$$

$\times n \hat{=} \div E^2$

$$n = \frac{z_{\alpha/2}^2 \cdot \sigma^2}{E^2} = \left(\frac{z_{\alpha/2} \cdot \sigma}{E} \right)^2$$

If we wish to choose a maximum error, E , then we must sample at least

Round up. $\rightarrow n = \left(\frac{z_{\alpha/2} \cdot \sigma}{E} \right)^2$

Ex: Refer to the adult male heights. What sample size would give a max error of 0.2? (Still @ 94% confidence).

$$n = \left(\frac{z_{\alpha/2} \cdot \sigma}{E} \right)^2 = \left(\frac{1.88 \cdot 3}{0.2} \right)^2$$

$$= 795.24$$

$$= \underline{796}$$