1. The VanDelay Company manufactures scanners. You have been asked to construct a confidence interval (CIE) that can be used to estimate the population mean life. You take a random sample of 81 scanners and find the sample mean life to be 8.50 years with a sample standard deviation of 2.70 years. Construct the following confidence interval estimators (CIE). You may use the values from the Z distribution since n is quite large.

\[ 8.50 \pm Z_{\alpha/2} \frac{2.70}{\sqrt{81}} \]

(a) Construct an 82% CIE: \( 8.50 \pm 1.34 \times (0.30) \rightarrow 8.50 \pm 0.40 \)

(b) Construct a 90% CIE: \( 8.50 \pm 1.645 \times (0.30) \rightarrow 8.50 \pm 0.49 \)

(c) Construct a 95% CIE: \( 8.50 \pm 1.96 \times (0.30) \rightarrow 8.50 \pm 0.59 \)

(d) Construct a 99% CIE: \( 8.50 \pm 2.575 \times (0.30) \rightarrow 8.50 \pm 0.77 \)