
SOLUTIONS TO
TEST YOUR KNOWLEDGE: Estimation

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: $8.50 \pm 1.34 (.30) \rightarrow 8.50 \pm .40$

(b) Construct a 90% CIE: $8.50 \pm 1.645 (.30) \rightarrow 8.50 \pm .49$

(c) Construct a 95% CIE: $8.50 \pm 1.96 (.30) \rightarrow 8.50 \pm .59$

(d) Construct a 99% CIE: $8.50 \pm 2.575 (.30) \rightarrow 8.50 \pm .77$