

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\frac{10}{\sqrt{25}} = \frac{10}{5} = 2$

2.2

- 1.96

3.1 B

- Dividing by a larger n makes $\text{Var}(\bar{X})$ smaller

3.2

(a)

- $1200 \pm 1.96 \frac{150}{\sqrt{100}} = 1200 \pm 1.96(15) = 1200 \pm 29.4; (1170.6, 1229.4)$

(b)

- the interval becomes **wider** (a higher confidence level needs a larger z , here 2.576)

3.3

- mean $\bar{x} = \frac{120}{8} = 15$; unbiased variance $s^2 = \frac{1}{n-1} \left(\sum x^2 - \frac{(\sum x)^2}{n} \right) = \frac{1}{7} \left(1840 - \frac{120^2}{8} \right) = \frac{1}{7}(1840 - 1800) = \frac{40}{7} = 5.71$