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$$1) E[X] = \frac{1}{\lambda} = \frac{1}{\left(\frac{1}{4}\right)} = 4 \quad V[X] = \frac{1}{\left(\frac{1}{4}\right)^2} = 16$$

$$\sigma_x = \sqrt{16} = 4$$

$$\bar{x} = 4 \quad \sigma_{\bar{x}} = \frac{4}{\sqrt{49}}$$

$$P(3.60 \leq \bar{x} \leq 4.12) = P\left(\frac{3.60 - 4}{\frac{4}{\sqrt{49}}} \leq \frac{\bar{x} - 4}{\frac{4}{\sqrt{49}}} \leq \frac{4.12 - 4}{\frac{4}{\sqrt{49}}}\right)$$

$$P(-0.7 \leq Z \leq 0.21) = \phi(0.21) - \phi(-0.7) =$$

$$0.58317 - (0.24196) = 0.34121$$