

Q2

$$X \sim N(2.65, 0.85^2)$$

$$1. P(2 \leq X \leq 3) = P\left(\frac{2 - 2.65}{0.85} \leq \frac{X - 2.65}{0.85} \leq \frac{3 - 2.65}{0.85}\right)$$

$$= P(-0.7647 \leq Z \leq 0.41176) = \underline{\underline{0.4375}}$$

$$2. \bar{X} \sim N\left(2.65, \frac{0.85^2}{25}\right)$$

$$3. P(\bar{X} \leq 3.00) = P\left(\frac{\bar{X} - 2.65}{0.85/5} \leq \frac{3.00 - 2.65}{0.85/5}\right) = \underline{\underline{0.588}}$$