

B0621124 8.11.18

3. (a) $\mu = 65$

$$\sigma = 3$$

$$\bar{x} = 64$$

$$n = 25$$

$$\text{st. norm. cdf}(\bar{x} - \mu, \text{loc} = \mu, \text{scale} = \sigma / \sqrt{n} \times 0.5)$$

$$\Rightarrow 0.0478$$

(b) $\mu = 65$

$$\sigma = 3$$

$$n = 25$$

$$\bar{x}_{\text{bar}} = 64$$

$$\text{st. norm. cdf}(\bar{x} = \bar{x}_{\text{bar}}, \text{loc} = \mu, \text{scale} = \sigma / \sqrt{n} \times 0.5)$$

$$\Rightarrow 0.0478$$

(c) $P(\bar{X}_1 \leq X) = 0.05 \Rightarrow z = -1.645$

$$\frac{\bar{X}_1 - X}{\sigma / \sqrt{n}} = -1.645$$

$$X = 62.2583$$

(d) $X_1 = 62.2583$

$$\frac{\bar{X}_1 - X_2}{\sigma / \sqrt{n}} = 1.65$$

$$X_2 = 67.7417$$

$$\Rightarrow (X_1, X_2) = (62.2583, 67.7417)$$

