

A Solutions to Exercises

Problem 1.

$$\begin{aligned} \text{a. } P(X < 1.4) &= P(X \leq 1.4) \quad (\text{since } X \text{ is continuous}) \\ &= F_X(1.4) \\ &= 0.90 \end{aligned}$$

$$\begin{aligned} \text{b. } P(X > 1.4) &= 1 - P(X \leq 1.4) \\ &= 1 - F_X(1.4) \\ &= 1 - 0.90 \\ &= 0.10 \end{aligned}$$

$$\begin{aligned} \text{c. } P(X < -1.4) &= P(X \leq -1.4) \quad (\text{since } X \text{ is continuous}) \\ &= F_X(-1.4) \\ &= 0.10 \end{aligned}$$

$$\begin{aligned} \text{d. } P(-1.4 < X < 1.4) &= P(-1.4 \leq X \leq 1.4) \quad (\text{since } X \text{ is continuous}) \\ &= F_X(1.4) - F_X(-1.4) \\ &= 0.90 - 0.10 \\ &= 0.80 \end{aligned}$$