Discussion - Week 5

Example 1 (Standard Normal Distribution)

The random variable Z is distributed Normal(0,1). Use the standard normal table to find the following.

(a) $P(Z < 0.68)$

(b) $P(Z \leq 2.45)$

(c) $P(Z \geq 2.45)$

(d) $P(Z < -0.57)$

(e) $P(Z \geq -1.89)$

(f) $P(0.24 \leq Z \leq 0.74)$

(g) $P(-1.31 \leq Z \leq -0.29)$

(h) $P(-0.43 \leq Z \leq 2.76)$

Example 2 (Normal Distribution - Probabilities)

Use the standard normal table to answer the following.

(a) X is distributed Normal(10,2). Find $P(X < 6)$.

(b) X is distributed Normal(8,0.2). Find $P(X \geq 8.3)$.

Example 3 (Normal Distribution - Quantiles)

The distribution of X is Normal(25, 3).

(a) Find c such that $P(X < c) = 0.2$

(b) Find c such that $P(X \geq c) = 0.7$

Example 4 (Normal Distribution)

(a) Find $P(\mu - \sigma < X < \mu + \sigma)$.

(b) Find $P(\mu - 2\sigma < X < \mu + 2\sigma)$.

(c) Find $P(\mu - 3\sigma < X < \mu + 3\sigma)$.