

수리통계학 42강 예제 230,231,232,233 풀이

예제 230

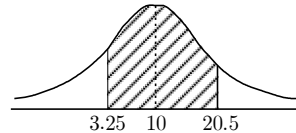
X 가 $\chi^2(10)$ 을 따를 때 $P(3.25 \leq X \leq 20.5)$ 를 구하여라.

(풀이)

$$\begin{aligned} \text{준식} &= P(X \geq 3.25) - P(X \geq 20.5) \\ &= 0.975 - 0.025 \\ &= \mathbf{0.95} \end{aligned}$$

$$\ast P(X \geq 3.25) \Rightarrow \chi^2_{\alpha}(10) = 3.25 \rightarrow \alpha = 0.975$$

$$P(X \geq 20.5) \Rightarrow \chi^2_{\alpha}(10) = 20.5 \rightarrow \alpha = 0.025$$



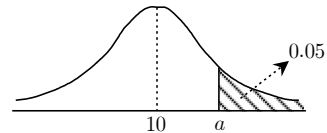
예제 231

X 가 $\chi^2(10)$ 를 따를 때 $P(X > a) = 0.05$ 일 때 a 를 구하여라.

(풀이)

$$P(X > a) = 0.05 \text{ 에서 } \mathbf{a = 18.307}$$

$$(\Leftrightarrow \chi^2_{0.05}(10) = 18.307)$$

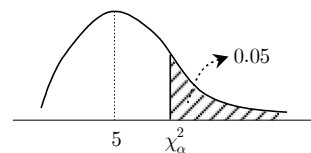


예제 232

X 가 $\chi^2(5)$ 분포를 따를 때 $P(X < \chi^2_{\alpha}) = 0.95$ 가 되는 χ^2_{α} 를 구하여라.

(풀이)

$$P(X \geq \chi^2_{\alpha}) = 0.05 \text{ 표에서 } \chi^2_{\alpha} = \mathbf{11.070}$$



예제 233

X 가 $\chi^2(20)$ 을 따를 때 $P(9.591 < X < 34.170)$ 를 구하여라.

(풀이)

$$P(X > 9.591) - P(X > 34.170) = 0.975 - 0.025 = \mathbf{0.95}$$

