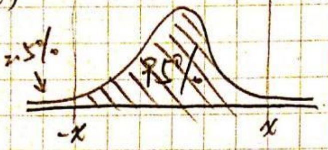
[1].

(a) $f_Z(z) = \frac{1}{\sqrt{2\pi}} e^{-z^2/2}$

(b) $P(-1<x<1) = \frac{1}{\sqrt{2\pi}} \int_{-1}^{1} e^{\frac{x^2}{2}} dt = 0.68269.$

(C)



97.5% = 0.975 ⇒ z = 1.96.

A = 1.96.

(d). $f_Q(q) = \begin{cases} \frac{1}{2^{\frac{1}{2}}\Gamma(1/2)} q^{-\frac{1}{2}} e^{-\frac{q}{2}}, & x>0 \\ 0, & 其他 \end{cases}$

(e) $E[Q] = 1.$

(f) $std[Q] = \sqrt{2}$

(g). $P(Q \leq 1) = \int_0^1 \frac{1}{\sqrt{2\pi}} \cdot x^{-\frac{1}{2}} \cdot e^{-\frac{x}{2}} dx$

[2].

(a) $f_T(t) = \begin{cases} e^{-t}, & t>0 \\ 0, & 其他. \end{cases}$ $\alpha = 3$, $\beta = 1$

(b) $E(T) = 1.$

(c) $std[T] = 1$

(d) $P(T>1) = \int_1^{\infty} e^{-t} dt = (-e^{-\infty} + e^{-1}) = e^{-1}$ #.

(e) $f_{T_3}(t) = \begin{cases} \frac{1}{1 \cdot \Gamma(3)} t^2 \cdot e^{-t}, & t>0. \\ 0, & 其他. \end{cases}$

(f) $E[T_3] = \alpha\beta = 3.$

(g) $std[T_3] = \sqrt{\alpha\beta^2} = \sqrt{3}.$

(h) $P(T_3 > 3) = \int_3^{\infty} \frac{1}{\Gamma(3)} t^2 \cdot e^{-t} dt = 0.423$ #

(i) $P(T_3 > 7) = 0.0296.$

st.gamma.sf(x=7, a=3, scale=1).

不接受.