B0729054 [illegible]

(1)

(a) $z = \frac{x-\mu}{6}$, $f_z(x) = e^{-\frac{1}{2}x^2} \cdot \frac{1}{\sqrt{2\pi}}$ $E(z)=0$, $E(z-\mu)^2=1$

(b) $Q_1 = z^2 = \chi^2 (df=1)$

$E(z_0 + z_1) = 0$

$E(z_0+z_1-\mu^2)^2 = 2$

(c) $Q_2 = z_1^2 + z_2^2 = \chi^2(df=2)$

(2)

(a) 0.6914, (1-st.norm.sf(1,0,2))

(b) 0.8413, (1-st.norm.sf(1,0,1))

(c) 0.6914, (1-st.norm.sf(1,0,2))

(3)

(a) $\mu_A = 65$ $\frac{\sigma_A^2}{2} = \frac{3^2}{25}$ $\frac{9}{25}$

$p = 4.7\%$