**ChE 320\_Spr\_17\_HW 4 Solution**

**3-182**

a) V(Y) = 9V(X1) + 25V(X2) + 2(3\*5)Cov(X1, X2) = 18 + 250 + 30(3) = 358 (Eq. 3-31)

b) (Linear function of dependent normal random variable is also normal)

**3-196** (Eq. 3-39, z table)

a) Mean: 50, Variance: 16/25 = 0.64

b) P(≤ 49) = 0.10565

c) P(> 52) = 0.00621

d) P(49 P(96 ≤≤ 51.5) = 0.969604 – 0.10565 = 0.863954 (approximately)

**3-198** (Eq. 3-39, z table)

a) (approximately)

b)  (approximately)

c) 

P(Z < z0) = 0.001, From the standard normal table, z0 = -3.09

(approximately)

**3-200** (Eq. 3-39, z table)

 (approximately)

**3-222 (**(a)Eq. 3-39, (b) Eq. 3-20, (c) Eq. 3-22)

a)



b)



c)



d) The values for the Poisson, Exponential and Normal differ from each other because the variances are different.

**3-234**

n = (0.03/0.005)^2 = 36