MATH 302 WORKSHEET IX SPRING 2009 NAME:______________________________

(PLEASE PRINT LEGIBLY)

1. Suppose X_1, X_2, X_3, X_4 is a random sample from an $N(x, \mu_X = 50, \sigma_X = 14)$.

Find the approximate probability that $\Pr(0.5248 \le \frac{S_X^2}{\sigma_X^2} \le 1.62584)$ using Maple.

2. Let $X_1, X_2, X_3, X_4, \ldots, X_{10}$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_{15}$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst $\sigma_X = \sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} \le 4.03)$ using Maple.

3. Let $X_1, X_2, X_3, X_4, \ldots, X_{10}$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_{15}$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst $\sigma_X = 2\sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} \le 4.03)$ using Maple.

4. Let $X_1, X_2, X_3, X_4, \ldots, X_{10}$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_{15}$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst $\sigma_X = \frac{2}{3}\sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} \le 4.03)$ using Maple.

5. Let $X_1, X_2, X_3, X_4, \ldots, X_{10}$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_{15}$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst $\sigma_X = \sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} > 3.7)$ using Maple.

4. Let $X_1, X_2, X_3, X_4, \ldots, X_8$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_6$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst $\sigma_X = \sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} > 2)$ using Maple.

5. Let $X_1, X_2, X_3, X_4, \ldots, X_{13}$ is an i.i.d. from a $N(x, \mu_X, \sigma_X)$ distribution and $Y_1, Y_2, Y_3, \ldots, Y_{11}$ is an i.i.d. from a $N(y, \mu_Y, \sigma_Y)$ distribution whilst it is assumed that $\sigma_X = 2\sigma_Y$

Approximate $\Pr(\frac{S_X^2}{S_Y^2} > 3)$ using tables.