HW12 reference answers

<u>8.39</u>

(a) $\chi_\alpha^2 = \chi_{0.99}^2 = 0.297$.

(b) $\chi_\alpha^2 = \chi_{0.025}^2 = 32.852$.

(c) $\chi_{0.05}^2 = 37.652$. Therefore, $\alpha = 0.05 - 0.045 = 0.005$. Hence, $\chi_\alpha^2 = \chi_{0.005}^2 = 46.928$.

<u>8.49</u>

$t = (24 - 20)/(4.1/3) = 2.927$, $t_{0.01} = 2.896$ with 8 degrees of freedom. Conclusion: no, $\mu > 20$.

<u>8.59</u>

$P\left(\frac{S_1^2}{S_2^2} < 4.89\right) = P\left(\frac{S_1^2/\sigma^2}{S_2^2/\sigma^2} < 4.89\right) = P(F < 4.89) = 0.99$, where F has 7 and 11 degrees of freedom.