Day 1

1. Consider a random sample of size 120 from a normal distribution. The outcome of the sample standard deviation is 2.
    a. Find an 80% upper confidence limit for σ^2.

b. Find a 90% lower confidence limit for σ^2.

2. Consider two independent random samples of size 40 and 80 from $N(\mu_1, \sigma_1^2)$ and $N(\mu_2, \sigma_2^2)$, respectively. The outcomes of the sample standard deviations are 2 and 3, respectively. The outcomes of the sample means or 11 and 77, respectively.
    a. Find a 95% equal tailed confidence interval for σ_1^2/σ_2^2.

b. Find a 95% equal tailed confidence interval for $\mu_1 - \mu_2$.