1. Construct a 90% confidence interval for the mean μ of a Normal distribution, based on the following random independent sample:

   -.9, .8, -.2, -1.3, -3.8, -2.4, -9.0, 2.0, 3.9, -8.0, -7.6, -.9, -9.8, -2.4, -1.8, -1.4, -2.8, -1.4, -4.5, -4.2

2. Using the previous sample, also construct a 95% confidence interval for the standard deviation σ of this distribution.

3. Assuming that two Normal distributions have the same standard deviation, construct a 99% confidence interval for the difference in their means (i.e. $\mu_1 - \mu_2$), based on the following random independent samples:

   First sample: 23., 9., 17., 31., 7., 34., 28., 41., 14., 37., 25., 28., 11., 21., 17.

   Second sample: 1., 23., 17., 3., -15., 2., 20., 25., 28., 24., 27., 12., 16., 41., 8.3, -7., 11., 9.2

4. If 183 independent trials resulted in 92 successes, construct an (approximate) 80% confidence interval for the probability of a success.

5. 37 of 215 randomly selected females and 49 of 198 randomly selected males experienced an adverse reaction to a certain type of vaccination. Construct a 95% confidence interval for $p_w - p_m$ (the corresponding difference of population proportions - assume both populations to be of a practically infinite size)