Pre-class preparation

Please read the following textbook sections from Degroot and Schervish's *Probability and Statistics* (fourth edition) or watch the video, as indicated:

- Video: `https://expl.ai/YASDSAG`

Objectives

By the end of the day's class, students should be able to do the following:

- State the definition of the size of a test, and explain what it means in common language.

- Calculate the size of a given test, and also determine decision rules that ensures a test has a specific level.

- Give the precise definition of the p-value of a test with respect to significance levels.

- Provide an intuitive meaning for p-value in cases where the null hypothesis is simple, and large values of statistic are unlikely.

- Calculate the p-value of a sample, both in cases with simple and composite hypotheses.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 8:45AM:

1. Suppose we have a hypothesis testing procedure δ. In your own words, describe how the size of the test $\alpha(\delta)$ relates to Type I error.

2. Determine whether each of the following statements is true or false. Briefly explain.

   (a) Every hypothesis test procedure has exactly 1 size.
   (b) Every hypothesis test procedure has exactly 1 level of significance.

3. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like would you like some more clarification on?