10.1 IRA Guide

Introduction

Screen 1: Recall that a statistic describes a sample and a parameter describes a population. [Section 1.1]

Screen 2: Go over the sampling techniques introduced in sections 1.3-1.4 before trying this problem.

Screen 3: Summary of different inequality signs.

Screen 4: List of Objectives

Screen 5: Watch the video to understand the idea behind hypothesis testing. This will give you the background information to understand why we use this procedure.
There are two questions on the following screens that are based on the material in this video.
 (You might want to look ahead to see what the questions are before watching the video)

Screen 6: The answer to this question can be found in the video on the previous screen.
You only get one attempt at this problem, so be sure that you understand the concepts presented in the video on Screen 5.

Screen 7: The answer to this question can be found by watching the video on screen 5.
You only get one attempt at this problem, so be sure that you understand the concepts presented in the video on Screen 5.

Objective 1 – Determine the null & alternative hypotheses

Screen 1: This relatively long video (11 minutes) goes over the language of hypothesis testing.
I know this is long, but it is important to watch. Keep a copy of my pointers for this section available as you watch it, and you might want to use the guided notebook to take notes as you go.

Screen 2: This exercise's answer can be found in the video on Screen 1. You need to understand the difference between a null hypothesis and an alternative hypothesis. (You could probably get this from my pointers as well.)
Be careful – this is a problem where you only get one attempt.

Screen 3: This screen explains the difference between one-tailed tests (left-tailed or right-tailed) and two=tailed tests. The "In Other Words" video should be helpful.

Screen 4: Example 1 goes over determining the null and alternative hypotheses as well as the tail of the test. You should watch the "By Hand" video solution.

Screen 5: This exercise is based on Example 1 on the previous screen.

Objective 2 – Explain Type I and Type II Errors

Screen 1: This screen explains the 4 possible outcomes of hypothesis testing, including the Type I Error (rejecting H0 when it is true) and the Type II Error (failing to reject H0 when it is false). You should watch the "In Other Words" video.

Screen 2: The table is a visual representation of the 4 possible outcomes. You should click on the video link to learn about the Type I and Type II Errors, as well as to understand how the whole process is similar to a legal trial.

Screen 3: Example 2 goes over how to identify and interpret Type I and Type II Errors. Be sure to watch the video.

Screen 4: This exercise is based on Example 2 on the previous screen.
Caution – since there are only 3 options in these multiple-choice questions you only get one attempt at each part of the problem. However you can always select Similar Problem to try all 3 parts again.

Screen 5: This screen explains the probabilities of making a Type I or Type II Error.

Screen 6: Definition of level of significance (alpha). Be sure to check out the "In Other Words" video.

Objective 3 – Conclusions to Hypothesis Tests

Screen 1: Read the screen and watch the "Caution" video. The most important thing to get is to understand that we never accept the null hypothesis.

Screen 2: Example 3 goes over how to state the conclusion to a hypothesis test. You should watch the video solution.

Screen 3: This exercise is based on Example 3 on the previous screen.

Screen 4: End of Section