

## Section 2.1 IRA Guide

### *Introduction*

Screen 1: This problem focuses on the difference between qualitative and quantitative variables and data. Refer back to section 1.1 for help.

Screen 2: This problem focuses on the four levels of measurement (nominal, ordinal, interval, ratio). Refer back to section 1.1 for help.

Screen 3: List of Objectives

### ***Objective 1: Organize Qualitative Data in Tables***

Screen 1: Definition of a frequency distribution.

Screen 2: Example 1 goes over how to organize qualitative data into a frequency distribution. You should watch the StatCrunch (SC) video solution to learn how to do this in StatCrunch.

If you want to try the problem using the same data, simply click on the icon to the right of Table 1 and the data will open in StatCrunch.

Screen 3: This is a good pointer for making sure you have not made a counting error.

Screen 4: This problem is based on Example 1 on screen 2. If you click the icon just to the right of the data, the data will open in StatCrunch. Then use the approach from Example 1's StatCrunch video.

Screen 5: Definition of relative frequency. Watch the In Other Words video.

Screen 6: Example 2 shows how to construct a relative frequency distribution for qualitative (categorical) data. Watch the StatCrunch video solution – the directions are very similar to the directions for a frequency distribution.

Screen 7: This is a good pointer – the sum of the relative frequencies should add up to equal 1 (or very close to that if there is some rounding). 1 is equivalent to 100%.

Screen 8: This problem is similar to Example 2 on screen 6. You can use StatCrunch to do this, click the icon to open the data in StatCrunch.

### ***Objective 2: Construct Bar Graphs***

Screen 1: Definition of a bar graph.

Screen 2: Example 3 goes over how to create a bar graph. Watch the StatCrunch video solution. Use “with data” when you have a list of all the data, and use “summary” when you have a frequency distribution.

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

In part C, if you switch to a relative frequency bar graph you can find the percent to use in the inferential statement.

In part D, you might want to go back and look over “Sampling Bias” from chapter 1.

For parts E and F, determine which of the 3 choices looks closest to your own graph. **Parts E and F are set to give you only one attempt, so be sure about your answer before submitting.**

Screen 4: You can give a quick read to the material about Pareto charts, but you will not be responsible for this material.

Screen 5: Introduction for side-by-side bar graphs for comparing two sets of data.

Screen 6: Example 4 goes over how to create side-by-side bar graphs. Watch the StatCrunch video solution.

Screen 7: This problem is based on Example 4 on the previous screen.

For the relative frequency distributions in parts A & B, I'd recommend creating a relative frequency bar graph for males for part A and a second one for females for part B. Place the values over the bars. If you do not see all of the values, maximize the graph and you will be able to see all 3 decimal places.

**Be careful with part C – you only get one chance to answer this part.**

Screen 8: A quick note on horizontal bars. We will not use them.

### ***Objective 3: Construct Pie Charts***

Screen 1: Definition of a pie chart – which is used with categorical data to compare one category to the whole. (Bar graphs are more useful for comparing one category to another category.)

Screen 2: Example 5 goes through the process for creating a pie chart. Watch the StatCrunch video solution. StatCrunch can create a pie chart for either “with data” or “with summary”.

Screen 3: This problem is based on Example 5 on the previous screen. Use StatCrunch to make the pie chart and then determine which of the four options is closest to yours.

Screen 4: This short video (2 minutes) is really important when determining whether to use a bar graph or a pie chart.

Screen 5: End of Section