A researcher was tasked with determining whether the video display used by travel agents for booking airline reservations should be in color or in black and white. Market research has shown that travel agencies were primarily concerned with the speed at which reservations can be made. Therefore, the question was whether color displays allow travel agents to book reservations faster. Fifty subjects were tested with color displays (x-bar = 503 sec, s = 9.3 sec) and fifty subjects were tested with black and white displays (x-bar = 508.2 sec, s = 9.0 sec). Test if the reservations made on the color displays were significantly faster (less time) than those made on the black and white displays at a significance level of 0.05.

1. Write the null and alternative hypothesis.

2. Calculate the test statistic and the P-value. Label each accordingly.

3. Using your answer to #2, would you reject the null hypothesis? Justify your answer using a complete sentence and proper grammar. Do NOT write a conclusion.

4. Write out the final conclusion for this hypothesis test *as you would present it to the travel agency*. Use complete sentences and proper grammar.

After running the hypothesis test, you found out that the agencies are not concerned with statistical significance. The agencies would like to know if the difference in speed is of *practical importance* to them. Market research has shown that in order to justify the higher price of color displays, they must be faster by an average of at least 10 seconds per transaction.

5. Construct a 90% confidence interval for the difference in the means (color minus black and white).

6. Use the interval to explain *to the agencies* what the confidence interval means. Then, based on the confidence interval tell them if they should or should not pay for color displays. Use the interval you created in your explanation. Use complete sentences and proper grammar.