Analysing an A/B Experiment

A company is interested in investigating whether adding a new variant to a particular website will improve i) the visit through time and ii) the proportion of query items resolved compared to that observed in the current website.

A sample of 300 customers were directed to either the current or new variant of the website and their visit through time whether or not their query was resolved was recorded.

Variables of Interest:	Visit Through Time: *Time* (secs)
	Resolved: *Resolved* (Yes / No)
Between Subject Factor:	Variant: *Variant* (A/B)
	where 'A' represents the current website and 'B' represents the website with new variant.

The data are stored in the *ab_test.csv* dataset.

You are asked to use these data estimate the probability that:

1. a random customer will have a visit through time on the new site of less than 3 minutes;
2. at least 70% of queries on the new site will be resolved in a day where it is assumed that 55 customers visit the site in a day.

You are also asked to provide a comprehensive analysis of these data to decide whether the new site is better than the current site in terms of an improved (average) visit through time and proportion of query items resolved.

In your report you must address the following points:

1. Describe the design used.
2. Outline any concerns might you have with the design used.
3. Provide suitable numerical and graphical summaries.
4. Provide the results of a suitable formal analysis (hypothesis test and interval estimate) for both response variables.
5. Calculate and interpret a 95%/95% Tolerance Interval for the visit through time variable.
6. Make a conclusion as to whether the change should be made to the current website.