MAT 135, Quiz #2, Spring 2016 Name KEY

**Instructions**: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. Describe the difference between cluster sampling and stratified sampling.

in cluster sampling, after grouping whole groups are selected randomly for sample

in stratified sampling, after grouping a random sample is taken from within every group.

2. Describe an example of a study that would need institutional review board approval. Why is it necessary in this case?

any study involving human subjects generally requires IRB approval (answers may vary)
it's necessary because we want to protect the safety of the subjects in a study

3. Below is a list of 30 answers to the question "What is your favourite colour?" obtained from a student survey. Create a table of the frequencies for each colour in the data set, and convert that to a relative frequency table.

Data:

| | | | | | |
|---|---|---|---|---|---|
| Blue | Green | Blue | Red | Black | Orange |
| Blue | Pink | Blue | Blue | Green | Green |
| Yellow | Red | Red | Blue | Black | Purple |
| Green | Green | Red | Green | Blue | Orange |
| Blue | Red | Black | Pink | Red | Blue |

| Colour | Frequency | | Relative Frequency – Percent (round to one-tenth of a percent) |
|---|---|---|---|
| Black | III | 3 | $\frac{3}{30} = \frac{1}{10} = 10\%$ |
| Blue | ~~IIII~~ IIII | 9 | $\frac{9}{30} = \frac{3}{10} = 30\%$ |
| Green | ~~IIII~~ I | 6 | $\frac{6}{30} = \frac{2}{10} = 20\%$ |
| Orange | II | 2 | $\frac{2}{30} = \frac{1}{15} = 6.7\%$ |
| Pink | II | 2 | $\frac{2}{30} = \frac{1}{15} = 6.7\%$ |
| Purple | I | 1 | $\frac{1}{30} = 3.3\%$ |
| Red | ~~IIII~~ I | 6 | $\frac{6}{30} = \frac{2}{10} = 20\%$ |
| Yellow | I | 1 | $\frac{1}{30} = 3.3\%$ |
| Total | | 30 | 100% |