MATH 3020
Homework
Due: Start of Class 19 January 2018 Ch 1 - Ch2

NAME: _____

Problem 1. Simplify $\frac{15}{6} + \frac{31}{14}$. Show as much work as possible.

Problem 2. Simplify $\frac{28}{6} \times \frac{30}{21}$. Show as much work as possible.

Problem 3. Given $n! = (n)(n-1)(n-2)\cdots(2)(1)$. Simplify $\frac{50!}{46!4!}$. Show as much work as possible.

Problem 4. Find the derivative of $f(x) = \frac{1}{5x^2}$.

Problem 5. Find c such that $\int_0^1 c(x - 3x^2)^2 dx = 1$.

For problems 6-9 circle your answer:

Problem 6. The voting district of your classmates is what type of data?

Qualitative Continuous Quantitative Discrete Quantitative Ordinal

Problem 7. A study involving caffeine consumption among undergraduate students at Clemson University recorded data of students daily caffeine consumption. What type of study is this?

Before and After Study Experimental Study Observational Study Retrospective Study

Problem 8. A statistician performs an observational study on the height of herons in relation to nesting altitude. He comes to the conclusion that herons nesting at higher altitudes causes taller herons. Given the nature of the study, is this a reasonable result?

Yes No, the relation is backwards No, it is an observational study What is a heron?

Problem 9. Interviews of 100 adults 18 years or older, conducted nationwide, found 44% could state the minimum age required for the office of the U.S. president. The quantity 44% is a parameter. Is this true or false?

Yes No, it is a sample statistic No, it is a property Wait, there is an age limit?

Problem 10. Give a quantitative population with 6 members so that $\mu = 0$ and $\sigma = 1$.

Problem 11. Give a quantitative population with 6 members so that $\mu = 1$ and $\sigma = 0$.

Problem 12. A study of the flight times of 6 flights from Dulles to LAX had an median of 263 minutes.

258	257	258	???	272	285

Compute the missing number, please show your work.

Problem 13. A professor recorded grades for 20 students who took an exam but when she went to post individual student grades in her book, discovered that the dog had eaten one of the exams, so she did not know the score for that missing test, and was kind enough not to give the student a zero. If the average of the 20 students was 89, and the average of the 19 exams (not eaten by the dog) was 90, what was the missing grade? (Please show your work!)

Problem 14. A study of heights of students in a class (rounded up to the nearest inch) is:

$$\{68, 68, 67, 63, 74, 72, 73, 66, 69, 70, 78, 64, 66, 68, 104\}.$$

Compute the following descriptive statistics (include units): median, mode, sample mean, sample variance, the quartiles Q_1, Q_2, and Q_3. Then graph the data as a dot plot, stemplot, and and a boxplot.