

STAT 467/667 Extra Credit

SPRING 2015

Due in class on Monday May 4. These problems refer to the 4th Edition.

Each problem is worth 2 points. To receive full credit, you must show your work and justify your claims. Full credit will give you an extra 10 points towards your final grade.

1. Chapter 5, No. 5.2.8 (Derive the maximum likelihood estimate for p .)
2. Chapter 5, No. 5.3.10
3. Chapter 6, No. 6.2.6
4. Chapter 7, No. 7.4.12
5. Suppose that the five random variables X_1, X_2, \dots, X_5 are *i.i.d.* and that each has a standard normal distribution. Determine a constant c such that the random variable

$$\frac{c(X_1 + X_2)}{(X_3^2 + X_4^2 + X_5^2)^{\frac{1}{2}}}$$

will have a t distribution.