AMS-205B WINTER 2016
HOMEWORK 1

All numbers refer to Casella & Berger, Statistical Inference, Second Edition, Duxbury.

(1) Problem 5.2.
(2) Problem 5.3.
(3) Problem 5.8.
(4) Problem 5.10.
(5) Problem 5.16.
(6) Problem 5.17.
(7) Problem 5.21.
(8) Problem 5.24.
(9) Problem 5.27.
(10) Problem 5.36.
(11) Problem 5.42.
(12) Let $X_1, \ldots, X_n$ be an iid sample with $X_i \sim \mathsf{N}(\mu, \theta^2)$. Use the definition of convergence in probability and the fact that $\sum_{i=1}^n (X_i - \mu)^2/\sigma^2 \sim \chi^2_n$ to show that $\sum_{i=1}^n (X_i - \mu)^2/n$ converges in probability to the the constant random variable σ^2 as $n \to \infty$.