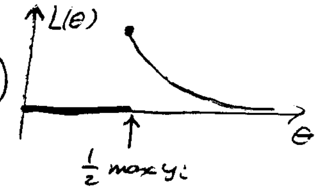
9.83 $f(y) = \frac{1}{2\theta}, \quad 0 \le y \le 2\theta \Rightarrow L(\theta) = \left(\frac{1}{2\theta}\right)^n I(0 \le \text{all } y_i \le 2\theta)$

$= \frac{1}{(2\theta)^n} I(2\theta \ge \max y_i) = \frac{1}{(2\theta)^n} I(\theta \ge \frac{1}{2} \max y_i)$



$\therefore \ \hat{\theta} = \frac{1}{2} \max y_i.$

9.87 Let Y be the number of defective items in the sample. Then $Y \sim$ binomial (n, p), where p is the proportion of defective items produced in the entire day. We know that the m.l.e. of p is $\hat{p} = Y/n$ by Example 9.14, p.399. Now $R = Np/N(1-p)$, where N is the number of items produced in the entire day. Thus $R = p/(1-p)$ and so $\hat{R} = \hat{p}/(1-\hat{p})$ by functional invariance.