HW # 2

5. $f(x_1, \cdots, x_n) = \prod_{i=1}^{n} f(x_i \mid \theta)$

$$= \prod_{i=1}^{n} \frac{1}{2i\theta} I\left(-i(\theta-1) \le x_i \le i(\theta+1)\right)$$

$$= \left(\frac{1}{2\theta}\right)^n \left(\prod_{i=1}^{n} \frac{1}{i}\right) I\left(\min \frac{x_i}{i} \ge -(\theta-1)\right) I\left(\max \frac{x_i}{i} \le \theta+1\right)$$

$\therefore \left(\min \frac{x_i}{i}, \max \frac{x_i}{i}\right)$ is sufficient for θ.