

8.1 Cournot Oligopoly

$$X = \sum_{i=1}^n x_i$$

$$P(X) = b(K - X) + c$$

$$\max_{x_i} \pi = P(X)x_i - cx_i$$

$$\frac{d\pi}{dx_i} = P(X) + P'(X)x_i - c \stackrel{!}{=} 0$$

$$P(X) + P'(X)x_i = c$$

$$P(X) + \frac{1}{n}P'(X)X = c$$

$$b(K - X) + c + \frac{1}{n}(-b)X = c$$

$$b\left(K - X - \frac{1}{n}X\right) = 0$$

$$K = \left(1 + \frac{1}{n}\right)X$$

$$X = \frac{1}{\frac{1}{n} + 1}K$$