Let x be the amount you birded Let ω be the profit made Which Xeleods to the Wight $E(W)$? For 0 fixed x, $\underset{\text{disease.}}{\omega} = \{X - 100$ with P (win bid) $P($ Win bid) $= P(x < y)$ you bid loser than overs

$$= 1 - \frac{P(y < x)}{+ \text{ tings did ese then your}}$$

$$\text{P(y¡x)=} \begin{cases} 0 & \text{if } x < 70 \\ \frac{x-70}{70} & \text{if } 70 \leqslant x < 140 \\ 1 & \text{if } x \geqslant 140 \end{cases}$$

$$\text{P}\left(\begin{array}{l} Y = X - 100) \\ \min b \ln \end{array} \right. = \begin{cases} 1 - 0 = 1 \text{ if } x < 70 \\ 1 - \left(\frac{x-70}{70}\right) = 2 - \frac{x}{70} \text{ if } 70 \leqslant x < 140 \\ 1 - 1 = 0 \text{ if } x \geqslant 140 \end{cases}$$

$$E(W) = (x - 100)\left(2 - \frac{x}{70}\right) + 0 \cdot p(10 \text{ se bid })$$

$$= 2x - \frac{x^2}{70} - 200 + \frac{10x}{7} = \frac{24}{7}x - \frac{x^2}{70} - 200$$

$$\frac{d}{dx}(E(\omega)) = \frac{24}{7} - \frac{1}{70}(2x) = \frac{24}{7} - \frac{x}{35} \qquad (1)$$

$$\frac{d^2}{dx^2}(E(\omega)) = -\frac{1}{35} < 0 \text{ (80, it is max point)}$$

$$\text{At} \quad \frac{d}{dx}(E(\omega)) = 0, \quad \frac{24}{7} = \frac{x}{35}$$

$x = 120$; Should bid: $\$120,000$