Let x be a mount you bidded W be profit made which x leads to highest $E(\omega)$ us us the world
$x = \min(\text{ the warld }) - u(70, 140)$ continuous
$f_y(y) = \begin{cases} \frac{1}{70}, & 70 < y < 140 \\ 0, & \text{other tuise} \end{cases}$

$$P(\text{ win }) = \frac{1}{70} \cdot (140 - x) \qquad F_y(y) = p(y \leq y)$$
$$= \left(2 - \frac{x}{70}\right) \qquad \frac{y - 70}{70} = p(y \leq y)$$

should bid $\$120,000$
$E(w) = (x - 100)P(\text{win }) + 0P(\text{ lose })$
$= (x - 100)\left(2 - \frac{x}{x}\right) + 0$
$= 2x - \frac{x^2}{70} - 200 + \frac{10}{7}x$
$= \frac{24}{7}x - \frac{x^2}{70} - 200$
$\frac{d}{dx} = \frac{24}{7} - \frac{x}{35}$, For min or max, $\frac{24}{7} - \frac{x}{35} = 0$
$\frac{d^2}{dx^2} = -\frac{1}{35} < 0$, maximum point $\quad x = 120$