Let x be the amount you bidded, Find x that leads to highest $E(w)$, and W be the profit you made. where $100 \leqslant x \leqslant 140$ Let Y be minimum bid by other company
support of X is

$$\text{Forafixed } x, W = \begin{cases} (x-100), \text{ with probability } \dfrac{140-x}{70} & = \dfrac{1}{70}(x-100) \\ 0, \text{ with probability } \dfrac{x-70}{70} & = \dfrac{1}{70}(140x- \\ f_x(x) = f_y(y) = \dfrac{1}{70} & E(w) = \dfrac{1}{70}(240x - 1 = \dfrac{24}{7}x - \dfrac{1}{7} \\ y - 70 & \dfrac{d(E(\omega))}{dx} = \dfrac{24}{7} - \dfrac{1}{35}x \end{cases}$$

$F_y(y) = \frac{y-70}{70}$ when $\frac{d(E(\omega))}{dx} = 0$,
$\frac{1}{35}x = \frac{24}{7}$
$x = 120$
$\frac{d^2(E(\omega))}{dx^2} = -\frac{1}{35}$
$\because -\frac{1}{35} < 0, \frac{d^2(E(\omega))}{dx^2} < 0,$
$\therefore$ profit is maximired.
$\therefore$ you should bid $\$120,000$.