Let x be amount bidded, w pwote $f_x(x) = \begin{cases} \frac{1}{70} & ,70 < x < 140 \\ 0 & 0/w \end{cases}$ Want: lowest x that wins

$E(x) = 105 \quad \text{var}(x) = \frac{4900}{12}$ For a fired x, let profpe be $p \begin{cases} x - 100 & \text{if you wan} \\ 0 & \text{ow} \end{cases}$

$$\begin{aligned} P\left(w_{1n} b_{1d}\right) &= P\left(x < \min b_{1d}\right) \\ &= 1 - P(\text{ mab bid } < x) E(P) = 5 \\ E(w) &= (x - 100) P(x < \min \text{ bid }) + \frac{x}{x} \frac{1}{70} dx \\ &= (x - 100) \int_x^{140} \frac{1}{70} dx \\ &= (x - 100) \left(2 - \frac{x}{100}\right) \\ &= 2x - \frac{x^2}{70} - 200 + \frac{100}{70} x \\ &= \frac{24}{7} x - \frac{x^2}{70} - 200 \end{aligned}$$

Max $x = -\frac{x}{35} + \frac{24}{7} = 0$

$\frac{d}{dx}(F(w)) = -\frac{x}{35} + \frac{24}{7} \frac{d^2}{dx^2} = -\frac{1}{35}$ (max point)

$x = \$120000$