X is the amount bid ω is perfit

$$\omega = x - 100,000$$
$$E(\omega) = E(x) - 100,000$$

$$\begin{aligned} P(x < Y) &= 1 - P(Y < x) \\ &= 1 - \int_{70}^{x} \frac{1}{70} dx \\ &= 1 - \left[\frac{x}{70}\right]_{70} \\ &= 2 - \frac{x}{70} \end{aligned}$$

$$E(X) = (x - 100)\left(2 - \tfrac{x}{70}\right) + 0 \times P(10x)$$
$$\therefore B_{10} = 120k$$
$$= -\tfrac{x^2}{70} + 2x - 200 + \tfrac{10}{7}x$$
$$\begin{aligned} \tfrac{d}{dx}\left[-\tfrac{x^2}{70} + 2x - 200 + \tfrac{10}{7}x\right] &= -\tfrac{71}{35}x + 2 + \tfrac{10}{7} = 0 \\ 2 \quad x &= 120 \end{aligned}$$