$$M \cup U(70,140) \to f_M(m) = \begin{cases} \frac{1}{x}, & a < x < b. \\ 0. & \text{otherwise} \end{cases}$$

Let x be your bid and r be profit

$$Y = \begin{cases} x - 100, \text{ with probability } P(x < M) \\ 0, \text{ otherwise} \end{cases}$$

$$P(Y = X - 100) = P'(x < M) = 1 - P\left(M' = x\right)$$

$$P(M = x) = \begin{cases} 0 & \text{if } x < 70 \\ \frac{x}{10-1} & \text{if } 705x = 140 \\ 1 & \text{if } x \geqslant 140 \end{cases}$$

$$\therefore P(Y = x - 100) = \begin{cases} 1 & \text{if } x < 70 \\ 2 - \frac{x}{70} & \text{if } 70 < x < 140 \\ 0 & \text{if } x \geqslant 140 \end{cases}$$

$$E(Y) = (x - 100)\left(2 - \frac{x}{70}\right) = 2x - \frac{x^2}{70} - 200 + \frac{10}{7}x = -\frac{x^2}{70} + \frac{24}{7}x - 200 = -\frac{1}{70}\left(x^2 - 240x\right) - 200$$

$$= -\frac{1}{70}\left(x^2 - 240x + 14400\right) + \frac{1440}{7} - 200$$

$$= -\frac{1}{70}(x - 120)^2 + \frac{40}{7}$$

$$E'(Y) = -\frac{1}{35}(x - 120) = 0, x = 120$$

$x < 120, E'(x) > 0, E$ is imereasng
$x > 120, E'(p) < 0, E$ is decreabing.
$\therefore$ At $x = 120, t(1) \geq$ at maximum.