

$P(\text{right answer})=1/5$

$E_x = \text{math expectation} = \sum_{i=1}^{10} i * \left(\frac{1}{5}\right)^i = 0.31$

$E_x^2 = \sum_{i=1}^{10} i^2 * \left(\frac{1}{5}\right)^i = 0.47$

$D_x = \text{variance} = E_x^2 - (E_x)^2 = 0.47 - 0.1 = 0.37$