

Consider the following two random variables:

$$X = \begin{cases} +1 & \text{with probability } 1/2 \\ -1 & \text{with probability } 1/2 \end{cases}$$

$$Y = \begin{cases} +10 & \text{with probability } 1/200 \\ -10 & \text{with probability } 1/200 \\ 0 & \text{with probability } .99 \end{cases}$$

What are $\mathbb{E}(X)$, $\mathbb{E}(Y)$, $\mathbb{E}(X^2)$, and $\mathbb{E}(Y^2)$?
Which has larger variance, X or Y ?