Let the joint probability density function of X and Y be

$$f_{X,Y}(x, y) = \begin{cases} kx & \text{for } x > 0, \ y > 0, \ 1 < x + y < 4 \\ 0 & \text{elsewhere} \end{cases}$$

where k is a constant.

Find $E(Y|X = 2.5)$ and $\text{Var}(Y|X = 2.5)$.