h is monotonic in the components of X.

Then $\mathbb{P}\left(h(X) \leq x\right)$

$= \mathbb{P}($

$\mathbb{P}\left(h(X) \leq X_n\right) = \mathbb{P}\left(X \in h^{-1}(X_n)\right)$

$h^{-1}\left(\{y : y \leq X_n\}\right)$