The conditional expectation theorem

MathsNET
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- State the conditional expectation theorem

- In the video we calculated the expectation and variance of a particular random variable using the conditional expectation theorem, which random variable?

- Explain why $\mathbb{E}(X+1) = \mathbb{E}(X) + 1$.

- Explain why $\mathbb{E}[(X+1)^2] \neq \mathbb{E}(X^2) + 1$ and what the left hand side of this equation is really equal to

The conditional expectation theorem

- Explain why $\mathbb{E}[\ln(XY)] = \mathbb{E}[\ln(X)] + \mathbb{E}[\ln(Y)]$