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mathematics

# The conditional expectation theorem

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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



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