



# The Cauchy-Schwartz Inequality

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- Give the expression we would use to express the correlation between a random variable  $Z$  and a random variable  $X$ . Explain the role of the third random variable  $Y$  in your expression.
- Complete the following sentence: If  $Z = X$  the random variables  $X$  and  $Z$  are ...
- Complete the following sentence: If  $Z = -X$  the random variables  $X$  and  $Z$  are ...
- Reproduce the proof of the Cauchy-Schwartz Inequality in full.