The Cauchy-Schwartz Inequality

- Give the expression we would 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.