Random equations and identities

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Chapter 5

$\mathcal{R}(AB) = R(A)$ if B is an invertible matrix.

Riesz basis condition implies the invertibility of the Gram matrix (footnote of FSP page 94).

Finite geom series:

$$\sum_{k=a}^{b} t^k = \begin{cases} \frac{t^a - t^{b+1}}{1-t} & \text{for } t \neq 1 \\ b - a + 1 & \text{for } t = 1 \end{cases} \tag{1}$$