

Lab 4 - rezolvare

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November 2025

1 Exercițiul 7

Puterea unui semnal este $P_{\text{semnal}} = 90\text{dB}$. Se cunoaște raportul semnal - zgomot, $\text{SNR}_{\text{dB}} = 80\text{dB}$. Care este puterea zgomotului?

Rezolvare

$$\text{SNR}_{\text{dB}} = 10\log_{10}\text{SNR}$$

$$\frac{\text{SNR}_{\text{dB}}}{10} = \log_{10}\text{SNR}$$

$$\text{SNR} = 10^{\frac{\text{SNR}_{\text{dB}}}{10}}$$

$$\text{SNR} = \frac{P_{\text{semnal}}}{P_{\text{zgomot}}}$$

$$\frac{P_{\text{semnal}}}{P_{\text{zgomot}}} = 10^{\frac{\text{SNR}_{\text{dB}}}{10}}$$

$$P_{\text{zgomot}} = \frac{P_{\text{semnal}}}{10^{\frac{\text{SNR}_{\text{dB}}}{10}}}$$

$$P_{\text{zgomot}} = \frac{90}{10^{\frac{80}{10}}} = \frac{90}{10^8} = 9 * 10^{-7}\text{dB}$$

Răspuns: $P_{\text{zgomot}} = 9 * 10^{-7}\text{dB}$