Quiz 4

May 23, 2025 1:17 PM

1)

distance = 21 km

attenuation = 1.25 dB/3km

amp = 3.25 dB

$SNR_{dB} = 10 \log_{10}\left(\frac{P_2}{P_1}\right)$

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$\frac{-5}{10} = \frac{10 \log_{10}\left(\frac{P_2}{P_1}\right)}{10}$

$10^{-\frac{1}{2}} = \frac{2W}{P_1}$

$\frac{1}{\sqrt{10}} \times 2 = \frac{2W}{P_1}$

$P_1 = 6.324$

1.25 dB per 3km

1.25×7

8.75 db per 21km

$SNR_{db} = 3.75 - 8.75$

$SNR_{db} = -5$