

NCERT 11.15. Q10

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Question: A radio can tune in to any station in the 7.5 MHz to 12 MHz band. What is the corresponding wavelength band? **Solution:** The wavelength

Parameter	Value
f_{max}	12MHz
f_{min}	7.5MHz

TABLE 1
GIVEN PARAMETERS LIST

(λ) of a radio wave is inversely proportional to its frequency (f).

$$\lambda = \frac{c}{f}$$

$$\lambda_{max} = \frac{c}{f_{min}}$$

$$\lambda_{max} = \frac{(3 \times 10^8)}{(7.5 \times 10^6)} = 40 \quad (1)$$

For 12MHz:

$$\lambda_{min} = \frac{c}{f_{max}}$$

$$\lambda_{min} = \frac{(3 \times 10^8)}{(12 \times 10^6)} = 25 \quad (2)$$

Therefore, the radio can tune in to wavelengths ranging from 25 meters to 40 meters.