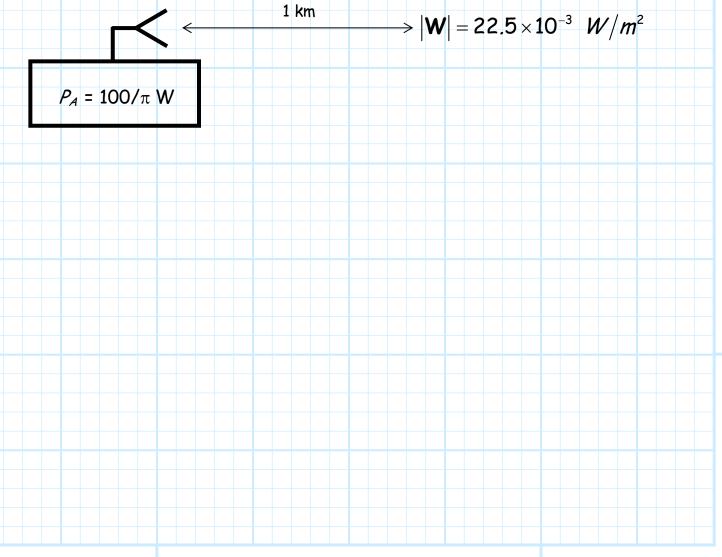
Special Problem 6.F-1

A transmitter delivers a 3 GHz signal with $100/\pi$ Watts of power to a very efficient parabolic reflector antenna.

At 1 kilometer away from the antenna (and in the direction of maximum radiation intensity), the antenna produces a power density of magnitude $22.5 \times 10^{-3} \ W/m^2$.

Determine the diameter of this paraboic reflector.



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