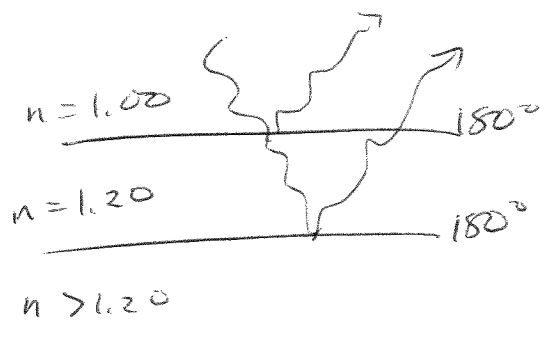


Ch. 3 Prob. 47

$n = 1.20$

$\lambda = 4.00 \text{ cm}$



a) Find The Thickness of the coating.

Assume the surface of the plane has a higher index of refraction than the coating.

Both surfaces result in a  $180^\circ$  phase shift.

Travelling through the coating ~~needs~~ needs to be equal to  $\frac{1}{2}$  wavelength to inhibit reflection

$\Delta l = \lambda/2$  and  $\Delta l = 2n \cdot t$

so  $\lambda/2 = 2n \cdot t$

$t = \frac{\lambda}{4n} = \frac{4.00 \text{ cm}}{4(1.20)} = \underline{1.67 \text{ cm}}$

$= \boxed{0.835 \text{ cm}}$

b) This thickness is more than just a coating.

IT would need to be a thick layer.

c) Which assumptions are unreasonable?

- Coating is able to be made uniform if it is this thick.
- The radar strikes the surface normal to the surface.