

38. In this case, we replace  $I_0 \cos^2 70^\circ$  by  $\frac{1}{2}I_0$  as the intensity of the light after passing through the first polarizer. Therefore,

$$I_f = \frac{1}{2}I_0 \cos^2(90^\circ - 70^\circ) = \frac{1}{2}(43 \text{ W/m}^2)(\cos^2 20^\circ) = 19 \text{ W/m}^2 .$$