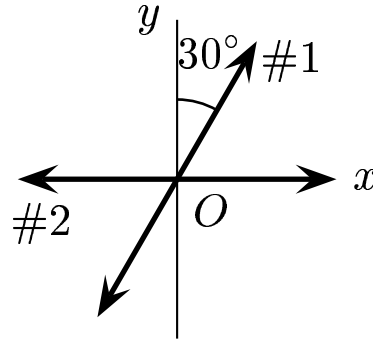
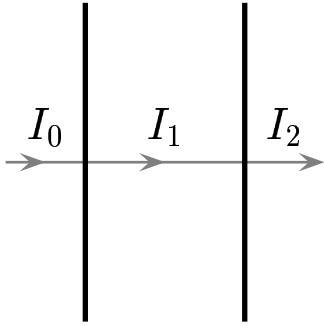


Consider the setup shown. Incident beam with intensity  $I_0$  is polarized along the  $y$ -axis. Assume #1 transmission axis is  $30^\circ$  with respect to the  $y$ -axis, and that of #2 is along the  $x$ -axis.



Find the final intensity  $I_2$ .

- A)  $I_2 = \frac{3 I_0}{16}$ .
- B)  $I_2 = \frac{3 I_0}{8}$ .
- C)  $I_2 = \frac{I_0}{4}$ .
- D)  $I_2 = \frac{I_0}{2}$ .

Polarized light  $I = I_0 \cos^2 \alpha$ .

$$I_1 = I_0 \cos^2 30^\circ = \frac{3 I_0}{4}.$$

$$I_2 = I_1 \cos^2 60^\circ = \frac{3 I_0}{16}.$$

Answer **A**.

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