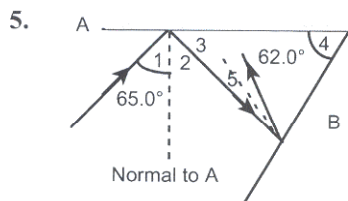
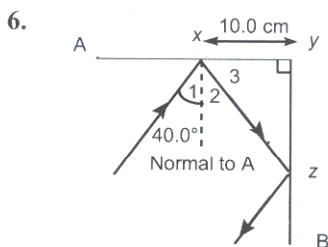


$$\begin{aligned} \angle 2 + \angle 3 &= 90.0^\circ, \therefore \angle 3 = 40.0^\circ \\ \angle 3 + \angle 4 + \angle 5 &= 180^\circ, \\ \therefore \angle 5 &= 180^\circ - 98.0^\circ - 40.0^\circ = 42.0^\circ \\ \angle 5 + \angle 6 &= 90.0^\circ, \therefore \angle 6 = 90.0^\circ - 42.0^\circ = 48.0^\circ \\ \angle 7 &= \angle 6 = 48.0^\circ \text{ -- law of reflection} \end{aligned}$$

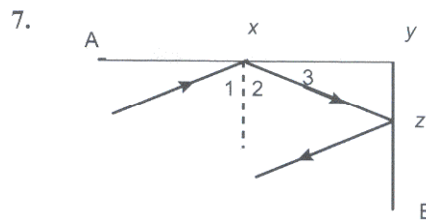


$$\begin{aligned} \angle 1 = \angle 2 &= 65.0^\circ \text{ -- law of reflection} \\ \angle 2 + \angle 3 &= 90.0^\circ; \therefore \angle 3 = 90.0^\circ - 65.0^\circ = 25.0^\circ \\ \angle 3 + \angle 4 + \angle 5 &= 180^\circ, \\ \therefore \angle 5 &= 180^\circ - 25.0^\circ - 62.0^\circ = 93.0^\circ \\ \angle \text{reflection} &= 93.0^\circ - 90.0^\circ = 3.0^\circ \end{aligned}$$



$$\begin{aligned} \text{Find } \angle 3: \\ \angle 1 = \angle 2 &= 40.0^\circ \text{ -- law of reflection} \\ \angle 2 + \angle 3 &= 90.0^\circ \\ \therefore \angle 3 &= 90.0^\circ - 40.0^\circ = 50.0^\circ \end{aligned}$$

$$\begin{aligned} \cos 50.0^\circ &= \frac{xy}{xz} \\ &= \frac{xy}{\cos 50.0^\circ} \\ xy &= \frac{10.0 \text{ cm}}{\cos 50.0^\circ} \\ &= 15.6 \text{ cm} \end{aligned}$$



Find $\angle 3$:

$$\begin{aligned} \tan \angle 3 &= \frac{yz}{xy} \\ &= \frac{7.0 \text{ cm}}{10.0 \text{ cm}} \\ \therefore \angle 3 &= 35.0^\circ \end{aligned}$$

$$\angle 2 + \angle 3 = 90.0^\circ, \therefore \angle 2 = 90.0^\circ - 35.0^\circ = 55.0^\circ$$

$$\angle 1 = \angle 2 = 55.0^\circ$$

8. $\tan \theta = \frac{\frac{1}{2}(xy)}{3.0 \text{ m}} = 0.283$

$$\theta = 16^\circ$$

Lesson 4—Reflection from Plane Mirrors

1. a)

