

**31** Using standard labels we have the following:

$$\alpha = 90^\circ - 54.3^\circ = 35.7^\circ, \quad \beta = 325.2^\circ - 270^\circ = 55.2^\circ \text{ and } \gamma = 180^\circ - 35.7^\circ - 55.2^\circ = 89.1^\circ$$

$$\frac{a}{\sin \alpha} = \frac{c}{\sin \gamma} \Rightarrow a = \frac{c \sin \alpha}{\sin \gamma} = \frac{15 \sin 35.7^\circ}{\sin 89.1^\circ} \approx 8.75$$

Then the perpendicular distance  $d$  from the ship to the shore can be found as follows:

$$\sin 55.2^\circ = \frac{d}{8.75} \Rightarrow d = 8.75 \sin 55.2^\circ \approx 7.2 \text{ mi.} \quad \text{The ship is about 7.2 miles from shore.}$$