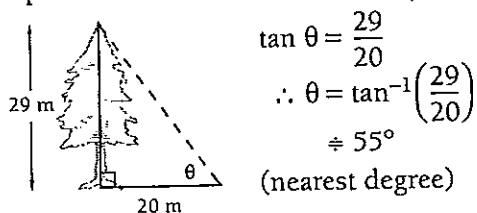# 14:07 | Angles of Elevation and Depression, Bearings
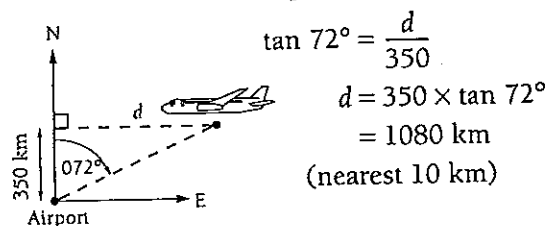
Name: _____ Class: _____

Examples

1 Find the angle of elevation of the top of a 29-m high tree, measured from a spot 20 m from its base.

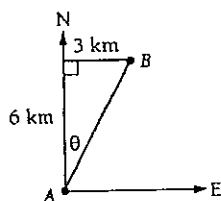$$\tan \theta = \frac{29}{20}$$

$$\therefore \theta = \tan^{-1}\left(\frac{29}{20}\right)$$

$$\doteqdot 55°$$

(nearest degree)

2 The bearing of a plane from an airport is 072°. If it is 350 km north of the airport, how far east of the airport is it?

$$\tan 72° = \frac{d}{350}$$
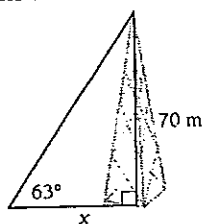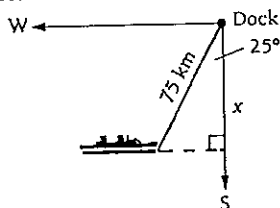
$$d = 350 \times \tan 72°$$

$$= 1080 \text{ km}$$

(nearest 10 km)

Exercise

1 Find the bearing of B from A, if B is 6 km north and 3 km east of A.

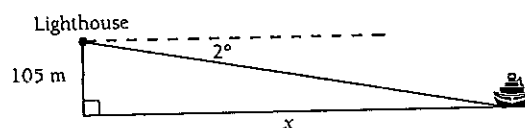2 From a lighthouse 105 m above sea level, the angle of depression of a boat is 2°. How far is the boat from shore?

3 The angle of elevation is 63° to the top of a 70-m tower. How far from the base of the tower was this measured?

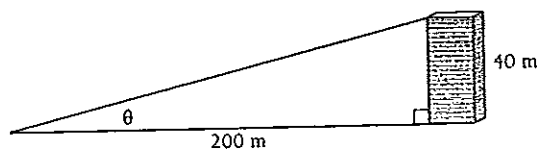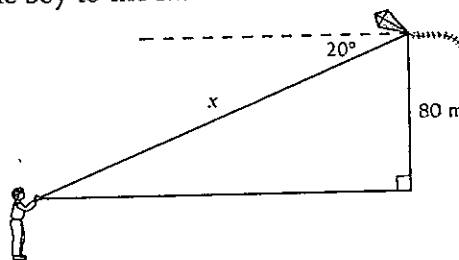4 Jack stands 200 m across the park from a 40-m high building. What is the angle of elevation to the top of the building?

5 A trawler sails on the course S25°W for 75 km from the dock. How far south of the dock is it?

6 The angle of depression from a kite to the boy flying it is 20°. If the kite is 80 m above the boy's hand, how long is the string from the boy to the kite?

4:07 Angles of Elevation and Depression, Bearings

1. 027° or N27°E
4. 11°
2. 3007 m
5. 68 km
3. 36 m
6. 234 m