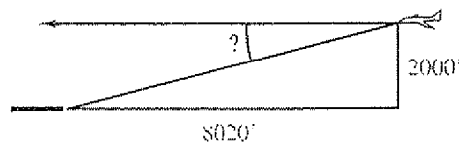


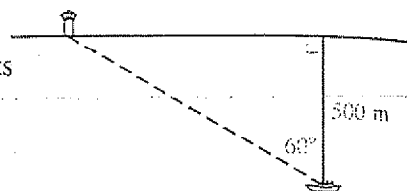
4. A pilot at an altitude of 2000 ft is over a spot 8020 ft from the end of an airport's runway. At what angle of depression should the pilot see the end of the runway?



5. A ranger is at the top of a 200-ft lookout tower located on a flat plain. She spots a fire at an angle of depression of 3° from the top of her tower. How far away is the fire?



6. At a point 500 m north of a ship, the shoreline runs east and west. West of that point, the navigator sights a lighthouse at an angle of 60° . How far is the ship from the lighthouse?



Solve. Draw a figure when necessary.

7. The pilot of a helicopter at an altitude of 10,000 ft sees a second helicopter at an angle of depression of 30° . The altitude of the second helicopter is 8000 ft. What is the distance from the first to the second along the line of sight? What is the horizontal distance between them? Find both answers to the nearest hundred feet.
8. A flagpole is at the top of a building. Four hundred feet from the base of the building, the angle of elevation of the top of the pole is 22° , and the angle of elevation of the bottom of the pole is 20° . Sketch a figure. To the nearest foot, find the length of the flagpole.
9. From a lighthouse 1000 ft above sea level, the angle of depression to a boat at B_1 is 29° . One minute later, the boat is at B_2 and the angle of depression measures 44° . How far to the nearest foot has the boat traveled? What is its speed in feet per hour?
10. The included angle between the 10-m and 15-m sides of a triangular garden plot measures 31° . Find the length to the nearest meter of the altitude to the shorter side.
11. The diagonals of a rhombus measure 10 cm and 24 cm. To the nearest degree, find the measures of the angles of the rhombus.
12. A 20-ft flagpole is erected at the top of a building of height h . From a distance d , the angle of elevation to the top of the pole is 45° and to the bottom is 42° . Find h and d to the nearest foot.

