

Section 5.9 Worksheet – Real-World Triangle Problems

- 1) The shadow of a vertical pole is 24.8 feet long when the angle of elevation of the sun is $42^\circ 18'$. Find the height of the pole.
- 2) A ship at sea, the Admiral (A), spots two other ships, the Barstow (B) and the Calgary (C), and measures the angle between them to be 37° . The distance between the Admiral and the Barstow is 175 meters. The Barstow reports an angle of 70° between the Admiral and the Calgary. To the nearest meter, what is the distance between the Barstow and the Calgary?
- 3) Island A is 300 miles from island B. A ship captain travels 340 miles from island A and finds that he is off course and 180 miles from island B. If his current location is C, what is angle ACB?
- 4) A ladder 14 feet long is leaning against a house. The foot of the ladder is 4.3 feet from the house. Find the angle of elevation of the ladder and the height it reaches on the house.
- 5) A student, standing in front of room 403 (A) on north campus, measures the angle between the library (B) and Clock Auditorium (C) to be 32° . The distance between the student and the library is 165 yards. From the library, the angle between room 403 and Clock Auditorium is 54° . To the nearest yard, what is the distance between the library and Clock Auditorium?
- 6) Room 403 (A) is 45 yards from the flag pole (B) and 55 yards from the north campus office (C). The flag pole and the office are 80 yards apart. What is the measure of angle ABC?
- 7) What is the angle of elevation of the sun when a vertical pole 19 feet high casts a shadow 11.5 feet long?
- 8) A neighborhood sign is designated as location C. To find the distance from house A to house B, a surveyor measures the angle BAC to be 40° , walks off a distance of 100 feet from house A to C, and measures the angle ACB to be 58° . What is the distance from house A to house B?
- 9) An airplane flies from Los Angeles to Palm Springs, a distance of 150 miles, and then flies from Palm Springs to Las Vegas, a distance of 330 miles. If angle LA-PS-LV is 50° , how far is it from Los Angeles to Las Vegas?
- 10) A surveyor observes the angle of elevation of the top of a vertical pole to be 27° . From a point in the same horizontal plane and 130 feet farther away, he observes the angle of elevation to be 20° . If the two points of observation and the top of the pole are in the same vertical plane, find the height of the pole.
- 11) At a local beach, a beach employee names the shower station as location C. The distance from lifeguard tower A to lifeguard tower B is 150 yards. Angle CBA is 60° and angle BAC is 55° . What is the distance from the shower station to each lifeguard tower?
- 12) A boy runs from Cope Middle School (A) to RHS (B), a distance of 1.3 miles. He then runs from RHS to REVHS (C), a distance of 2.6 miles. If angle Cope-RHS-REVHS is 110° , how far is it from Cope to REVHS?
- 13) Two points, A and B, are 400 feet apart on a level stretch of road leading toward a hill. The angle of elevation of the hilltop from A is 25° and the angle of elevation from B is 42° . Determine how high the hilltop is above the level road.
- 14) An aircraft (C) is spotted by two observers who are 1000 feet apart. As the airplane passes over the line joining them, each observer takes a sighting of the angle of elevation to the plane. The first observer (A) measures the angle of elevation to be 40° and the second observer (B) measures the angle of elevation to be 35° . How high is the airplane? (Point C is above and between A and B)
- 15) A Major League baseball diamond is a square 90 feet on a side. The pitching rubber (C) is located 60.5 feet from home plate (A) on a line joining home plate and second base. How far is it from the pitching rubber to first base? (B)