

1. Radar stations A and B are on an east-west line, 3.7 miles apart. Station A detects a plane at C, on a bearing of  $61^{\circ}$ . Station B detects the plane at a bearing of  $321^{\circ}$ . Find the distance from A to C. ANS: 2.92 mi
2. Driving along a straight flat stretch of Arizona highway, you spot a particularly tall saguaro ("suh-WARH-oh") cactus right next to a mile marker. Watching your odometer, you pull over exactly two-tenths of a mile down the road. Retrieving your son's theodolite from the trunk, you measure the angle of elevation from your position to the top of the saguaro as  $2.4^{\circ}$ . Accurate to the nearest whole number, how tall is the cactus? ANS: 44.26ft
3. Two ships leave port at 4 p.m. One is headed at a bearing of N 38 E and is traveling at 11.5 miles per hour. The other is traveling 13 miles per hour at a bearing of S 47 E. How far apart are they when dinner is served at 6 p.m.? ANS: 36.18 mi
4. The distance on a map from the airport in Miami, FL to the one in Nassau, Bahamas is 295 kilometers due east. Bangor, Maine is northeast of both cities; its airport is 2350 kilometers from Miami and 2323 kilometers from Nassau. What bearing would a plane need to take to fly from Nassau to Bangor? ANS: N1.64E
5. After the hurricane, the small tree in my neighbor's yard was leaning. To keep it from falling, we nailed a 6-foot strap into the ground 4 feet from the base of the tree. We attached the strap to the tree  $3\frac{1}{2}$  feet above the ground. How far from vertical was the tree leaning? ANS: 16.07
6. A plane flies 1.3 hours at 110 mph on a bearing of  $40^{\circ}$ . It then turns and flies 1.5 hours at the same speed on a bearing of  $130^{\circ}$ . How far is the plane from its starting point? ANS: 218.3 mi
7. You are taking a flight from Daytona Beach to St. Louis. There is a stopover in Atlanta. The bearing from Daytona Beach to Atlanta is N  $38.3^{\circ}$  W. The bearing from Daytona straight to St. Louis is N  $43.4^{\circ}$  W. The distance of the first leg of the trip from Daytona to Atlanta is approximately 599.8 kilometers. From Atlanta to St. Louis is another 748.4 kilometers. What is the total length of the trip with the stopover? How much shorter would it be to fly straight to St. Louis from Daytona Beach without a stopover? ANS: 1348.2 km, 3.61 km