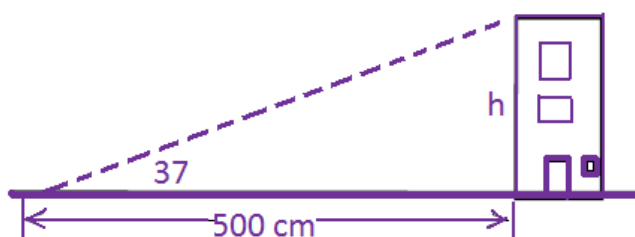


Name: _____

Applications and Models

Exercise 1: Lookout station A is 15 km west of station B . The bearing from A to a fire directly south of B is $S\ 37^{\circ}50'$ E. How far is the fire from B ?

Exercise 2: Find the height of a building given that the measurements below are taken. The angle of 37 degrees is known as the “angle of elevation.”



Exercise 3: What is the angle of elevation of the sun when a 35-ft mast casts a 20-ft shadow?

Exercise 4: An airplane is flying 10,500 cm above the ground level. The angle of depression from the plane to the base of a tree is $13^{\circ}50'$. How far horizontally must the plane fly to be directly above the tree?

Exercise 5: A ship travels 50 km on a bearing of 27, then travels on a bearing of 117 for 140km. Find the distance traveled from the starting point to the ending point.

Exercise 6: Find the distance in kilometers between Farmersville, California, 36° N, and Penticton, British Columbia, 49° N, assuming they lie on the same north-south line. The radius of the earth is 6400 km.