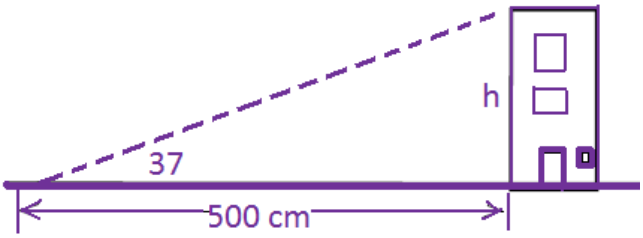
Name: _____

Applications and Models

Exercise 1: A pilot flies 10 miles with bearings N 30^0 E and then turns and flies 30 miles with bearings S 30^0 E. ow far from the original starting point is the pilot?

Exercise 2: Lookout station *A* is 15 km west of station *B*. The bearing from *A* to a fire directly south of *B* is S 37°50' E. How far is the fire from *B*?

Exercise 3: 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 4: What is the angle of elevation of the sun when a 35-ft mast casts a 20-ft shadow?

Exercise 5: 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 $13^0 50'$. How far horizontally must the plane fly to be directly above the tree?

Exercise 6: 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 7: 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.