

Group: _____ Present: _____

1. Find all triangles matching the following data:

(a) $\alpha = 70^\circ, b = 13, a = 5$

(b) $\alpha = 50^\circ, c = 10, a = 12$

(c) $a = 100, b = 140, c = 160$

For (c), also find the area of any triangles you find.

2. From the top of a 200 foot tall building the angle of elevation to a blimp is 50° . From the base of the building the angle of elevation to the blimp is 60° . What is the distance from the top of the building to the blimp?

3. To determine the distance through a mountain (through which a tunnel is to be built in an East-West direction), surveyors choose three locations: point A is a quarter of a mile directly West of the mountain, point B is a third of a mile directly East of the mountain, and point C is somewhere South of the mountain (not directly South). The distance from A to C is 1.2 miles, the distance from B to C is 2.1 miles, and the angle between AC and BC (at C) is 110° . Find the distance AB and hence find the length of the proposed tunnel.