

## Advanced Challenge Level 2 Problem #1

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Your job is to find the area (in acres) of the triangular plot of land shown below. You are able to accurately measure only two sides (shown as  $x$  and  $y$ ) and one angle (shown as angle B). The distance represented by  $x$  is about 1,730 feet, and the distance represented by  $y$  is about 1,250 feet. The angle represented by B is about  $39.7^\circ$ . All dimensions are correct to three significant digits.

You have to do each of the following.

1. Derive a relationship that gives the area,  $A$ , in terms of  $x$ ,  $y$  and angle B.
2. Use your relationship to estimate the area in square feet.
3. Convert your answer to acres.

Make sure you show/explain all aspects of your solution.

This diagram is not drawn to scale.

