

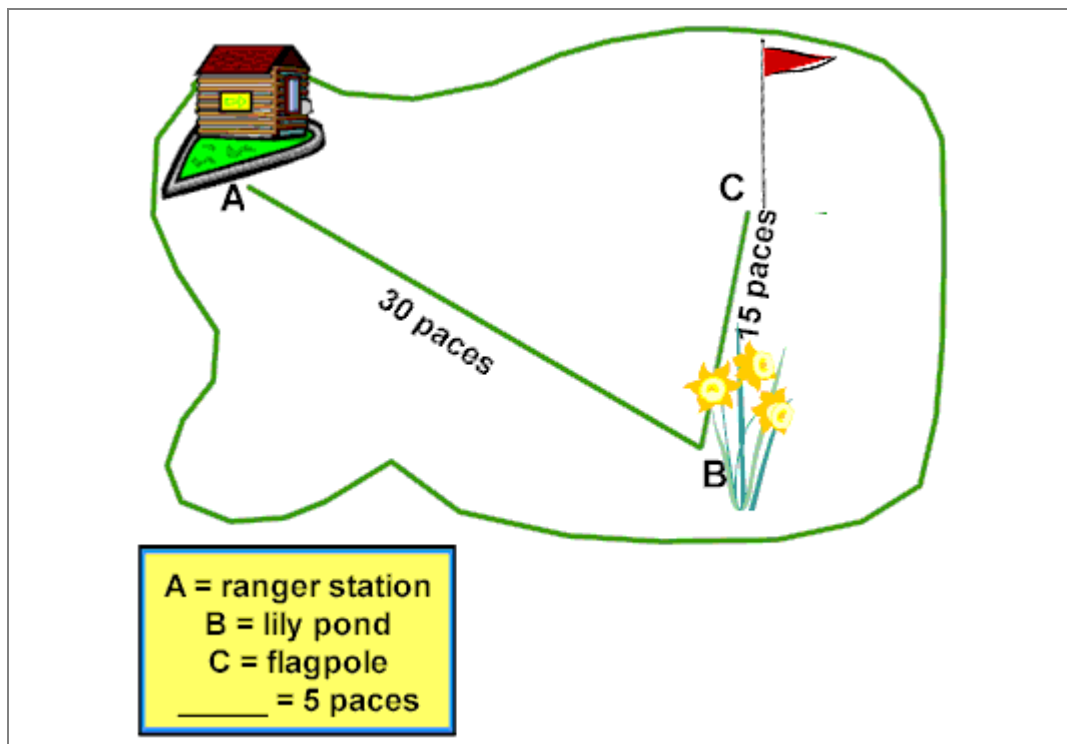
**Worksheet**  
**Compound Locus and Constructions**

Name \_\_\_\_\_

**Problem 1:**

Your old math teacher, Mr. Locus, is the director of activities for "Pirate Island" where you are vacationing. Mr. Locus has decided to run a treasure hunt for the guests. He supplies teams with a map and instructions. Before the guests go out to dig for the treasure, they are asked to plan their strategy on paper and have their work approved by Mr. Locus. You have decided to participate in this treasure hunt. You get out your compass and straightedge and read the clues.

On the map below, you must show all construction lines, and clearly indicate the location of the treasure.



1. Your first clue is to find all points equally distant from segments AB and BC **AND** equally distant from point A and point B.

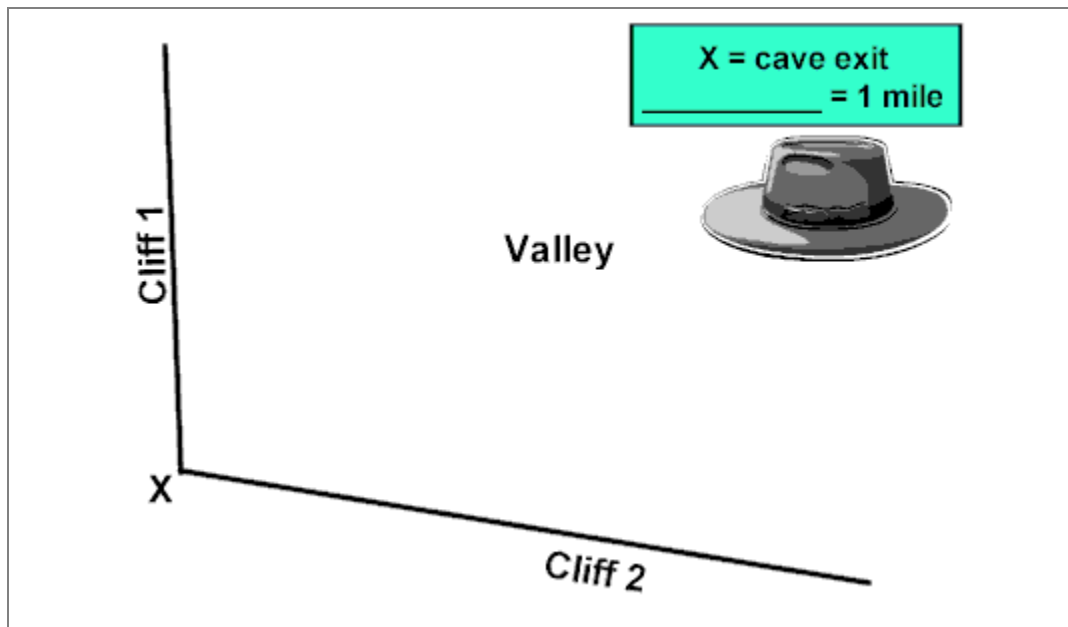
2. Label the point of intersection located in step 1 with the letter D.

Now,

3. To be able to find the treasure, you must locate the point which is 5 paces from point D **AND** is on segment BD.

## Problem 2:

Indiana Jones has gotten himself in trouble again! After exiting a cave at point X, the roof collapsed blocking the cave completely. He finds himself in a valley surrounded by tall cliffs which he cannot climb. You must help Indy find the only exit from the valley by following these instructions:

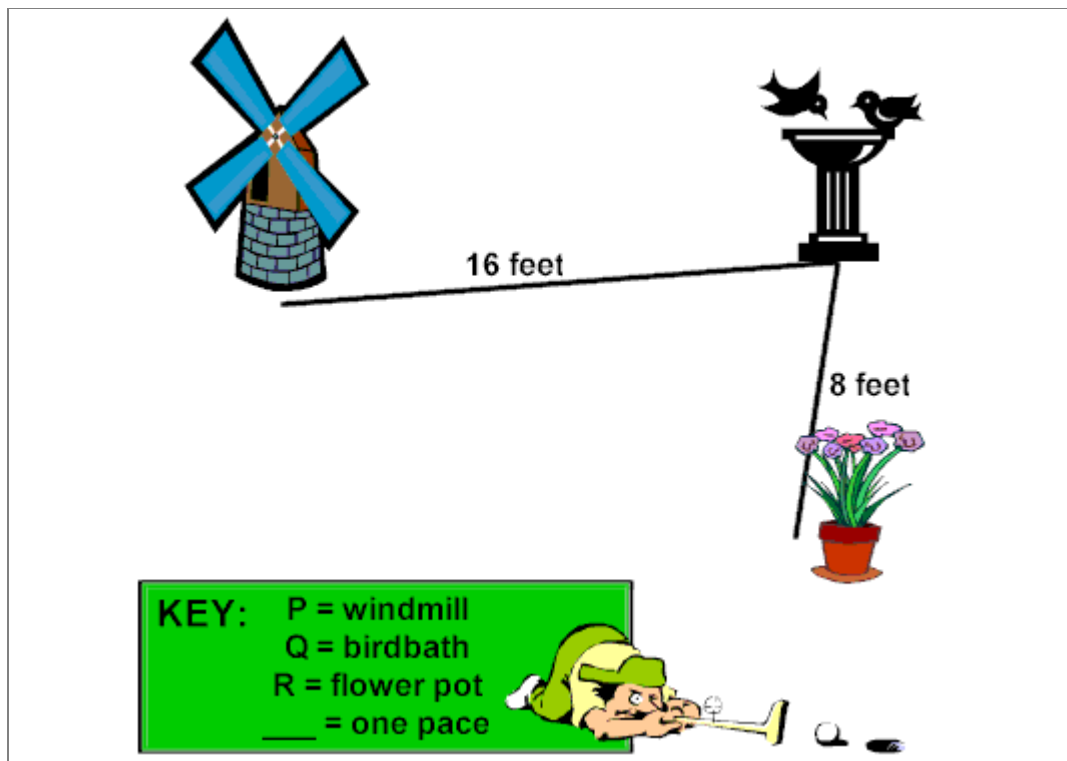


1. Locate a path which will take Indy into the valley, always the same distance away from the 2 cliffs.
2. Locate the point on this path which is 3 miles from the cave exit. (Label this point A.)
3. From point A, construct a perpendicular to the path. Extend this until it intersects cliff 2. (Label this point of intersection as point B.)
4. Construct the bisector of AB. Extend this until it intersects with cliff 2. This is the only exit from the valley. Label it E for escape!

### Problem 3:

You are working as a contractor for a miniature golf course. Unfortunately, your old math teacher, Mr. Theorem, designed the blueprints for the holes. Like all good math teachers, Mr. Theorem has used a mathematical description of where to find the cup for this hole. Get out your compass and straightedge and see if you can find where to position the cup for this hole.

On the blueprint below, you must show all construction lines, and clearly indicate the location of the cup.



Mr. Theorem writes:

"To find the location of the cup, draw the locus of points that are equally distant from segment PQ and segment QR **AND** equally distant from point P and point Q. Label this intersection as S. Now, locate the point which is 3 paces from point S **AND** is on segment QS. The cup is here."