

9-5 Assignment (Indirect Measurement)

Overview: You and a partner need to find the height of one object outside using both methods of indirect measurement from section 9-5, the shadow method and the mirror method. You may choose any object – sundial, building, tree, sign, light pole, radio tower on top of ASFM... anything that cannot be physically measured by standing on the ground.

Due Date: TUESDAY, FEB 11th

Deliverables: You and your partner will write **a paper** that includes the following items:

1. Give an overview of the problem. That is, describe the object that you are indirectly measuring and where it is located. Describe the two methods you are using. Explain how you know that the two triangles in either method are similar. Include in your explanation the shortcut used to ensure similarity. Explain how the components of the shortcut are established (for instance, 1 pair of corresponding angles are congruent because they are both right angles).
2. Include a photo of the object you are measuring.
3. Make neat diagrams (drawings) of the triangles used in both methods. The diagrams should be labeled with your measurements.
4. Write each proportion used in finding the height of your object. Show your work in solving the proportion. Make sure to label and circle your answer. Round all answers to the nearest unit.
5. Write a short summary of your findings by stating the height of your object obtained in each method. Then give a minimum of two possible reasons why the two heights obtained through the two methods may not be exactly the same.

Rubric:

	4	3	2	1
Completion	All deliverables are completed satisfactorily.	All but one or two of the deliverables are completed satisfactorily.	Most of the deliverables are completed satisfactorily.	Most of the deliverables are not completed satisfactorily.
Concepts	Explanation shows complete understanding of the mathematical concepts used to solve problem.	Explanation shows substantial understanding of the mathematical concepts used to solve problem.	Explanation shows some understanding of the mathematical concepts needed to solve the problem.	Explanation shows very limited understanding of the underlying concepts needed to solve the problem OR is not written.
Diagrams	Diagrams are clear and greatly add to the reader's understanding of the procedure.	Diagrams are clear and easy to understand.	Diagrams are somewhat difficult to understand.	Diagrams are difficult to understand or are not used.
Correctness	The steps and solutions have no mathematical errors.	All but one or two of the steps and solutions have no mathematical errors.	Most of the steps and solutions have no mathematical errors.	More than half of the steps and solutions have mathematical errors.