

Measuring the Inaccessible with Trigonometry

Names:

How our angle-measuring device works:**Object A****Measurements**

Angle: _____°

Horizontal distance:

Diagram:

Calculations:**Final height estimate:** _____**Object B****Measurements**

Angle: _____°

Horizontal distance:

Diagram

Calculations:**Final height estimate:** _____

Object C

Measurements

Angle: _____°

Horizontal distance:

Diagram:

Calculations:

Final height estimate: _____

Error Analysis — A Reflection on Sources of Error

Q1

If your angle measurement of Object A was 1° smaller, what height would you estimate?

Q2

Assuming your original calculation was correct: what percent error in height does that 1° angle error cause?

Q3 — Would a 1° error always cause the same percent error in height?

Show examples using at least three different angles to justify your reasoning:

Q4 — What other factor could cause error in your height estimate?

Assuming the angle measurement is correct, identify at least two other sources of error and explain how each would affect your estimate: