

Isosceles Triangle Exploration

Adv Geometry

Name _____

Date _____ Block _____

- 1) Use your ruler to draw an isosceles triangle ABC with A as the vertex angle
- 2) Measure the following angles:
 - $m\angle ABC =$ _____
 - $m\angle ACB =$ _____
- 3) Compare your results with your partner. What have you discovered about isosceles triangles?

- 4) Draw the median to \overline{BC}
Hint: you will need to first find the midpoint of \overline{BC} . Label this point M .
- 5) Measure the following angles:
 - $m\angle BAM =$ _____
 - $m\angle CAM =$ _____
- 6) Compare your results with your partner. What have you discovered about the median from the vertex angle in an isosceles triangle?

- 7) Measure the following angles:
 - $m\angle BMA =$ _____
 - $m\angle CMA =$ _____
- 8) Compare your results with your partner. What have you discovered about the median from the vertex angle in an isosceles triangle?

Write a formal proof for what you just discovered. You will need to write two separate proofs (or break off in two directions). Your proof may be in any format (two-column, K-N-P or paragraph)

Given: $\overline{AB} \cong \overline{AC}$
 \overline{AM} is a median of $\triangle ABC$

Prove: 1) \overline{AM} bisects $\angle BAC$
2) \overline{AM} is an altitude of $\triangle ABC$

