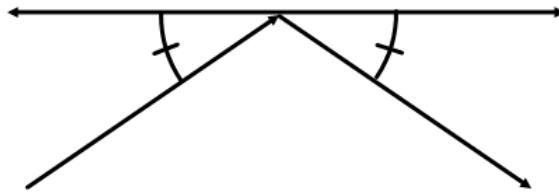


POW # 11 – Hinged Mirror Optics Proof

You experimented with mirrors and investigated the angles formed with an object reflected off a hinged mirror. For this week's POW, you will write a proof for the general case. You can write your proof in paragraph form or as a two-column proof. You do NOT need to write any additional write-up for this problem other than your proofs. You can use any of the postulates, theorems, definitions or algebraic properties. In addition, you can use the law of reflections that you learned about in class.

Law of Reflections (from Optics):

The incoming angle formed with the mirror is congruent to the outgoing angle formed with the mirror.

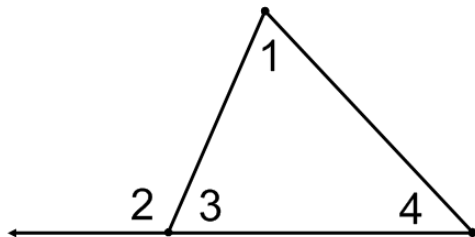


Part 1 – In order to help you with your proof, first prove the **Exterior Angle Theorem**.

Exterior Angle Theorem: the exterior angle is equal to the sum of the two remote interior angles.

Hints: Which angle do you think is an exterior angle?

Which angles would be remote interior angles in relation to the exterior angle?



Part 2 – Prove that $\angle 1$ is twice the measure of $\angle 2$.

