

Alternative Assessments in Geometry



Janet Kagan, NBCT
Hononegah High School
jkagan@hononegah.org

Using Properties of Special Segments in Triangles

Special Segment

Properties to remember

Midsegment	Parallel to side opposite it and half the length of side opposite it.
Perpendicular Bisector	Concurrent at the circumcenter, which is: <ul style="list-style-type: none"> • Equidistant from three vertices of Δ • Center of <i>circumscribed</i> circle that passes through
Angle bisector	Concurrent at the incenter, which is: <ul style="list-style-type: none"> • Located two thirds of the way from vertex to midpoint of opposite side • Balancing point of Δ • Center of <i>inscribed</i> circle that is tangent to all three sides
Altitude (perpendicular to line that contains a side of Δ through opposite vertex)	Concurrent at the orthocenter Used in finding area: If b is length of any side and h is length of altitude to that side, then $A = \frac{1}{2} bh$.

Scavenger Hunt

Special Segments of Triangles - Points of Concurrency

Open File – Rio-North.gsp

1. Michael waits for Colleen at the doors located at the west end of the Public Corridor between the Amazon Ballroom and the Tango Room. Unfortunately because of a lack of communication Colleen is waiting at the doors at the north end of the Public Corridor between the Amazon Ballroom and Coco A. They send text messages to Janet – and her phone is in a purse located at the northwest corner of Brasilia- Room 3. Key #1 is the point equidistant to these three locations.

Open File – Rio-Midsection

2. The Keynote speaker is arranging his materials in the center of the Stage in Brasilia Room 6. Tim hopes to attend the session but is waiting for his phone to finish charging in the outlet at the southwest corner of Miranda 5. Chef Pierre left his wallet and personal items in the back cupboard of the southeast corner of Miranda Kitchen. Key #2 is the centroid of the triangle formed by these 3 locations.

Open File – Rio-Midsection

3. Security guard Olsen blocks the doors leading to the Pavilion Kitchen closest to the Flamengo Boardroom. Officer Delarosa stands along the outer curved wall of the Miranda Patio across from the Bar/Coat Room so that she can view those who entered coming from the Pavilion Patio & Walkway. Maintenance Supervisor Christoff checks out the damage to the carpet in the southwest corner of Conga A. Key #3 is the orthocenter of the triangle formed by these three locations.

Open File – Rio-1

4. Security cameras are located in the northwest corner of Coco A and the northeast corner of Jaguar B. Key #4 is equidistant to these two security cameras. Additionally Key #4 is equidistant to both the Service Corridor north of the Amazon Ballroom and the Service Corridor East of the Palma Room.

Staple or Clip Key #1 Here

Staple or Clip Key #2 Here

Staple or Clip Key #3 Here

Staple or Clip Key #4 Here

Scavenger Hunt for Transformations

Working in a group find a real world example of the following transformations:

Translation

Reflection

Rotation

Dilation

Take a photo of your example. Included in the photo should be one or two of the members of your group (how else will I know that the photos belong to your group!) as well as the label of the transformation involved. Every member of the group should be in at least one of the photos.

- ◆ Reflection transformation: use the additional label for the location of the line of symmetry.
- ◆ Rotation transformation: use the additional label to indicate the location of the center of rotation.
- ◆ Translation transformation: use the additional label to indicate the translation vector.
- ◆ Dilation photo only needs label.

Scavenger Hunt for Transformations

(2 pts) Every member of the group is included in at least one of the photos. _____

♦ Reflection transformation

3 pts – correct depiction _____

1 pt – used label/and used correctly _____

♦ Rotation transformation:

3 pts – correct depiction _____

1 pt – used label/and used correctly _____

♦ Translation transformation

3 pts – correct depiction _____

1 pt – used vector/and used correctly _____

♦ Dilation transformation

3 pts – correct depiction _____

1 pt – used label _____

Inclusion of a unique photo:

2 pts _____

Total / 20 pts:

Line of Symmetry

Translation Vector

Center of Rotation

Dilation

