

Name: _____
 Geometry

Date: _____
 Band: _____

Unit 5: Relationships Within Triangles Performance Tasks

Instructions: Choose one performance task. Write all your work on a separate clean piece of paper and attach it to this page.

Big Idea: Coordinate Geometry

You can use the Midpoint Formula, the slope formula, and the relationship between perpendicular lines to find points of concurrency.

Performance Task 1

Ms. Lozada works at a math camp during summer vacation. She loves math so much that she mapped the campground on a coordinate grid. The campsites have the following coordinates: Collinear Caves at $C(2,2)$, Polygon Peak at $P(4,10)$, and Biconditional Bluff at $B(12,2)$. She wants to build a bonfire pit that is equidistant from all three campsites. Find the coordinates of the point where the bonfire pit should be placed.

Big Idea: Reasoning and Proof

You can use proven theorems to explore relationships among sides, angles, and special lines and segments in triangles.

Performance Task 2

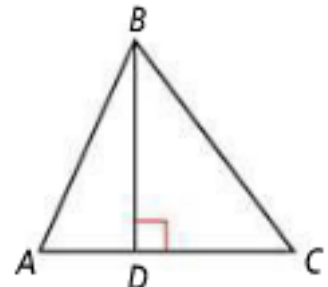
- Draw $\triangle ABC$ with obtuse $\angle C$ and draw its orthocenter O . Then find the orthocenters of $\triangle ABO$, $\triangle ACO$, and $\triangle BCO$. What conjecture can you make about these orthocenters? Explain why you will get this result.
- Will your conjecture be true for any acute or right $\triangle ABC$? Explain your reasoning.

Big Idea: Reasoning and Proof

You can use indirect reasoning to prove relationships within triangles.

Performance Task 3

In $\triangle ABC$, $AB \neq BC$. Show that there does not exist a point P on altitude \overline{BD} that is equidistant from A and C .



Performance Task Assessment: Analytic Holistic Scoring**Developing Autonomy—The student**

3	Persevered to complete the problem without help
2	Completed most of the problem without help
1	Needed key hints to complete the problem
0	Needed extensive guidance to work the problem

The Solution Process—The student's work showed

3	A complete and appropriate solution process
2	An appropriate solution process that is almost complete
1	An appropriate process that is partially complete
0	An inappropriate process or no evidence of a process

The Conclusion/Answer—The student's answer is an

3	Accurate conclusion, supported by valid evidence and reasons, appropriate to this problem and context
2	Inaccurate but logical conclusion, supported by evidence and reasoning but incorrect due to a minor factual error (in details of problem, in computation, recall a formula, etc.) or minor mistake in reasoning
1	Inaccurate but logical conclusion that overlooks, or gets wrong significant facts (about the problem, the rule, computation, etc.)
0	Inappropriate conclusion: not supported by facts and logic, or there is no conclusion

Teacher Comments: