

MeTEOR Performance Task

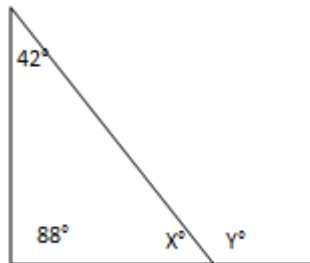
Geometry

Mathematics
Angle Measure

Performance Task Item: Angle Measures

Task/Question 1:

- A. Write the Triangle Angle-Sum Theorem:



Not drawn to scale

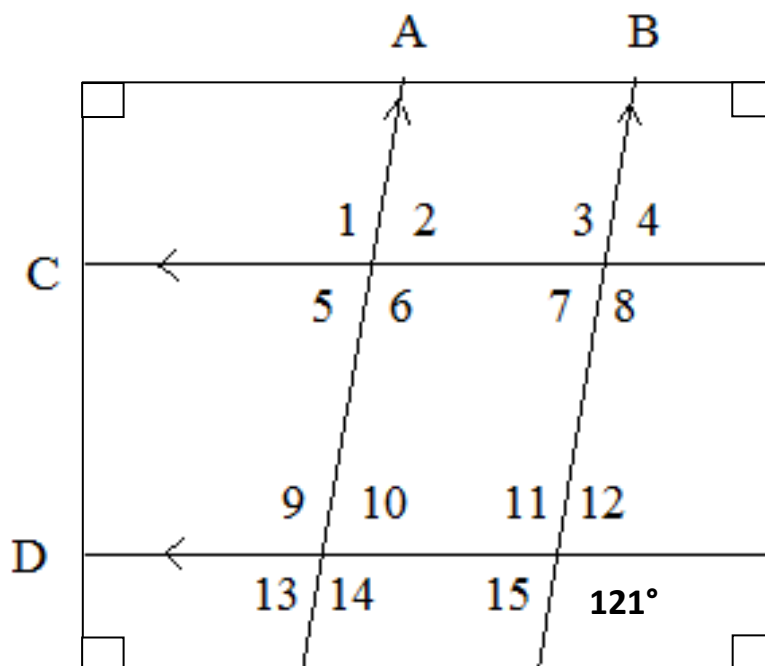
- B. The triangle shown above resembles the Summer Triangle made up of stars and their constellations in the Northern Hemisphere called Vega, Altair and Denab. Find the measure of angle x showing where Denab would be located and the exterior angle y .

$m \angle x$ _____ $m \angle y$ _____

- C. Complete the theorem (fill in the blank)

The measure of each exterior angle of a triangle equals the sum of the measures of its two _____ angles.

Task/Question 2:



A. Find the value of each numbered angle in the figure shown.

$m \angle 1$ _____ $m \angle 2$ _____ $m \angle 3$ _____ $m \angle 4$ _____

$m \angle 5$ _____ $m \angle 6$ _____ $m \angle 7$ _____ $m \angle 8$ _____

$m \angle 9$ _____ $m \angle 10$ _____ $m \angle 11$ _____ $m \angle 12$ _____

$m \angle 13$ _____ $m \angle 14$ _____ $m \angle 15$ _____

B. Explain how you determined the value of the angles in Part A:

Task/Question 4:

The city council of Mathville decided to make a change to the diagram in task/question 2. They decided it would be fun to include a park in the center of town which would include a sidewalk from angle 6 to angle 11 and also from angle 10 to angle 7. In making this change, no cars would be allowed to come through this area. (It will only be for pedestrians to have different paths to get from one side of the park to the other side.)

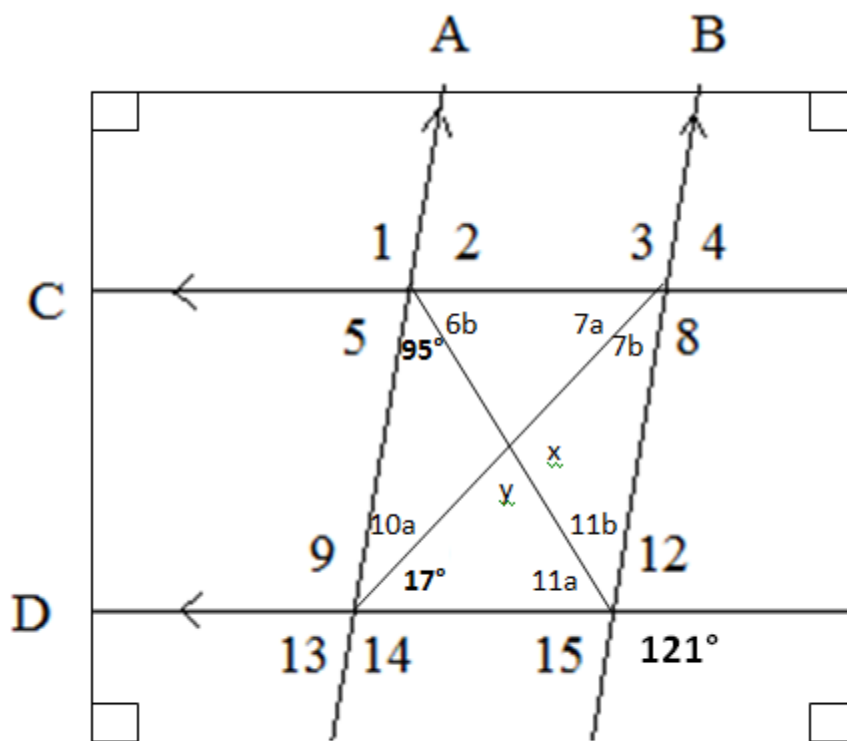


Figure not drawn to scale

A. Calculate the new angles in the park to submit to the construction board:

$m\angle 6b$ _____ $m\angle 7a$ _____ $m\angle 7b$ _____ $m\angle 10a$ _____
 $m\angle 11a$ _____ $m\angle 11b$ _____ $m\angle x$ _____ $m\angle y$ _____

B. After you calculate the new angles in part A, justify and defend how your process is the **most efficient** way of determining the angle measurements:

Task/Question 5:

The angles of the triangle used to create guy wires (*the wires that go from the ground up to an object that helps to hold it in place*), to an antenna are in the ratio of 1:2:3.

Find the measure of each angle. Then, create a real life situation where the measure of these angles is used in a real world setting within your history class. Describe your scenario in the space below.

Finally, describe how you could modify an equilateral triangle to use in this same setting.



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