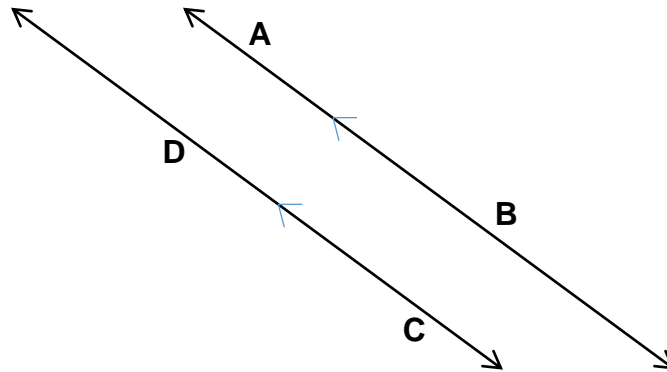Name: _____   Date: _____

Parallel Lines

Paula is a geometry student that has been given a diagram of lines and angles to analyze. This diagram is shown below:

Paula knows the following about this diagram:

- $\overline{AB}$ is parallel to $\overline{CD}$ ($\overline{AB} \parallel \overline{CD}$)

Now, let's add two more lines to this picture:

- Draw a line through points A and D so that $\overline{AD}$ is perpendicular to $\overline{AB}$ ($\overline{AD} \perp \overline{AB}$)
- Draw a line through points B and C so that $\overline{BC}$ is perpendicular to $\overline{CD}$ ($\overline{BC} \perp \overline{CD}$)

Based off of this information, Paula believes that $\overline{AD}$ is parallel to $\overline{BC}$. However, she isn't sure that she is right. Your job is to decide if Paula's conjecture is correct or incorrect. Write an argument to support your claim.

I   **agree / disagree**   *(circle one)* with Paula because _____

_____

_____

_____

$\overline{AD}$ **is / is not**   *(circle one)* parallel to $\overline{BC}$ because _____

_____

_____

_____