

The Angles Formed by a Transversal and Parallel Lines


1. Log on to the computer.
2. Double click on the **Math** icon.
3. Double click on the **Geometer's Sketch Pad** icon.
4. Go to **Display** on the top menu bar and highlight **preferences**, and then check **points** and **straight objects**, and then click **OK**. Now your drawings will be labeled.


There is a menu bar at the top and a toolbar on the left side we will be using both throughout this activity.


The menu bar at the top includes:

File Edit Display Construct Transform Measure Graph Work Help


The toolbar on the left hand side will be referred to as:

The pointer tool 

The point tool 

The circle tool 

The segment tool 

The label tool 

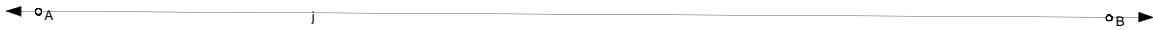
The object tool 

5. Click and hold on the **segment** icon in the toolbar, and highlight the **line** (arrows at both ends).
6. Create a line in the open window by clicking once and holding the mouse button down while moving across the screen. Once you let go of the mouse button you have created a line. It does not need to be perfectly horizontal.



7. Click on the **point** tool in the toolbar.
8. Click above your line in the window, to create another point not on the line.

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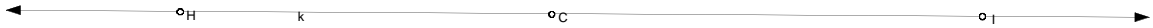


9. Click on the **pointer** tool.

10. Hold down the shift key while you click on your line, and your point. Then let go of the shift key. Both your line and your point will be selected now.

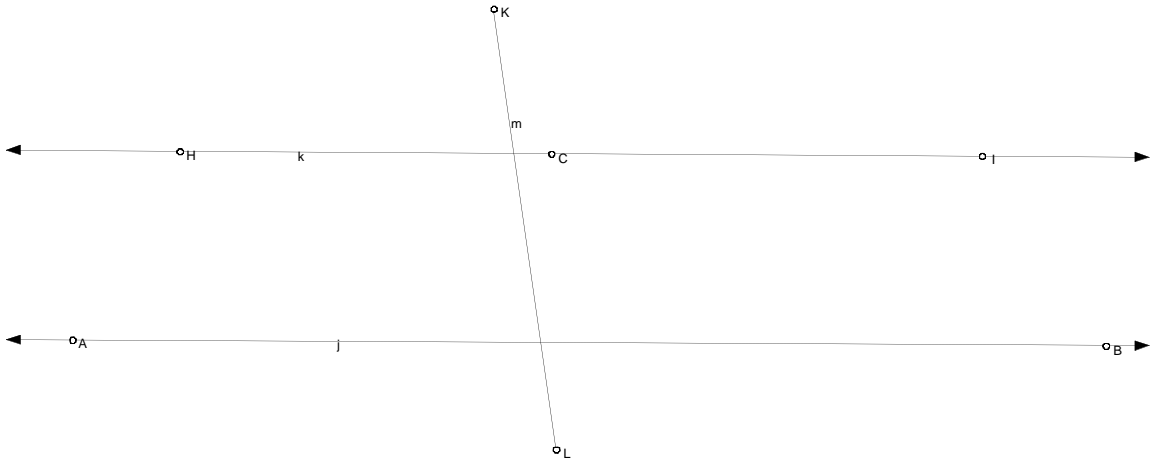
11. Go to **Construct** in the menu and highlight **construct a parallel line**. A new line will appear going through your point and parallel to your first line.

12. Click in the window not on anything to deselect.



13. Click once with the mouse on the **segment** tool in the toolbar on the left.

14. In the window, create a segment that intersects both parallel lines by clicking and dragging. Once you let go of the mouse button you have created a transversal.



15. Click on the **pointer** tool.

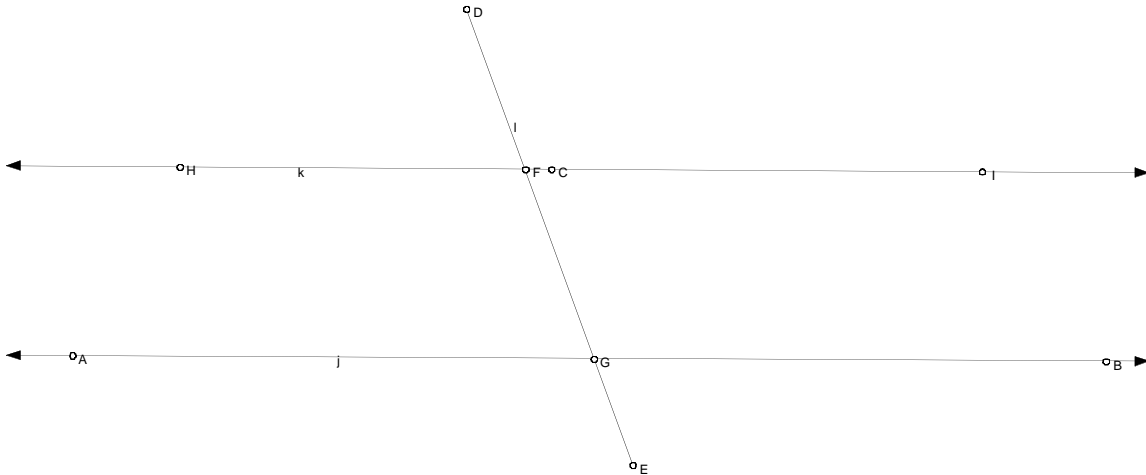
16. While holding down the shift key, click on the transversal and one of the parallel lines.

17. Go to **Construct** in the menu and highlight **point at intersection**.

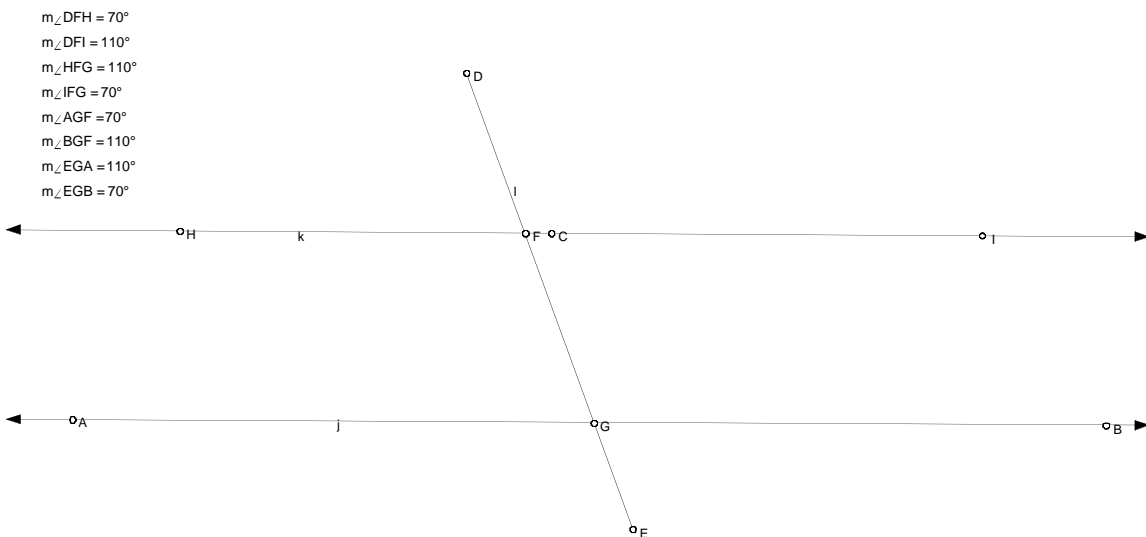
18. Deselect, by clicking in the window not on anything.

19. Repeat steps 16, 17, and 18 for the transversal and the other parallel line.

20. Click on the **point** tool.
21. Click on the far ends of your second parallel line to create points.
22. Click on the **pointer** tool.
23. Deselect



24. You are going to measure all eight angles. Begin by holding down the shift key while you click on all three points of the angle. **The points must be in order, meaning the point where the angle is must always be clicked on second.**
25. Go to the **Measure** in the menu and highlight **angle**. The angle measurement will show up in the left hand corner of the screen.
26. Deselect.
27. Repeat steps 24, 25, and 26 for the remaining seven angles.



28. Record the measurements on your worksheet.

29. You will need to move the transversal at least 3 times and record the new angle measurements on your worksheet.
30. To move the transversal, you click and drag with either endpoint, and then deselect.
31. To move either parallel line you click and drag any where on the line, and then deselect.
32. When you are done go to **File** in the menu and highlight **Quit**. When it ask you to save click on **Don't Save**.
33. Close all windows and, log off your computer.
34. Now, answer the questions, based on the chart, on your worksheet.

Name _____

Date _____

Angle Name	First Measurement	Second Measurement	Third Measurement

List the angles that remain congruent no matter how you move the transversal.

Name the two types of angles we can see in this exercise?

Do you think the lines must be parallel for the angle congruency to remain true?

If you have two parallel lines and any transversal what do you think holds true?