

Interesting Coplanar Locations!

- 1) In the applet on your screen, you'll notice a segment with endpoints A and B and a slider with name r .
- 2) Construct a circle with center A that has radius of r . (You won't see anything yet.)
- 3) Construct a circle with center B with radius of r . (You won't see anything yet.)
- 4) Select the **Move** arrow. Slide the slider r so that you see two circles emerging from centers A and B .
- 5) Use the Intersect tool to plot the two points of intersection of these two circles. (GeoGebra should default to naming these points of intersection C and D .)
- 6) What can you conclude about the distances CA and CB ? Why can you conclude this?

- 7) What can you conclude about the distances DA and DB ? Why can you conclude this?

- 8) Now, right click on point C . Select **Trace On**. Do the same for point D .
- 9) Bring the slider back to its left-end. Now start re-sliding the slider slowly and observe the traces of points C and D .
- 10) What is the relationship between every purple point (trace) you see with respect to point A and point B ? *Hint: Can you think of an adjective that describes the position of point C with respect to points A and B ?*

- 11) What does this coplanar purple locus (set of points that satisfy a certain condition) look like (with respect to segment \overline{AB} itself?)



12) Use GeoGebra to verify your response to (11) by using the other tools provided in the limited toolbar.

13) Complete the following:

If a point is _____ from the _____ of
a _____, then that point lies on the
_____ of that
_____.

