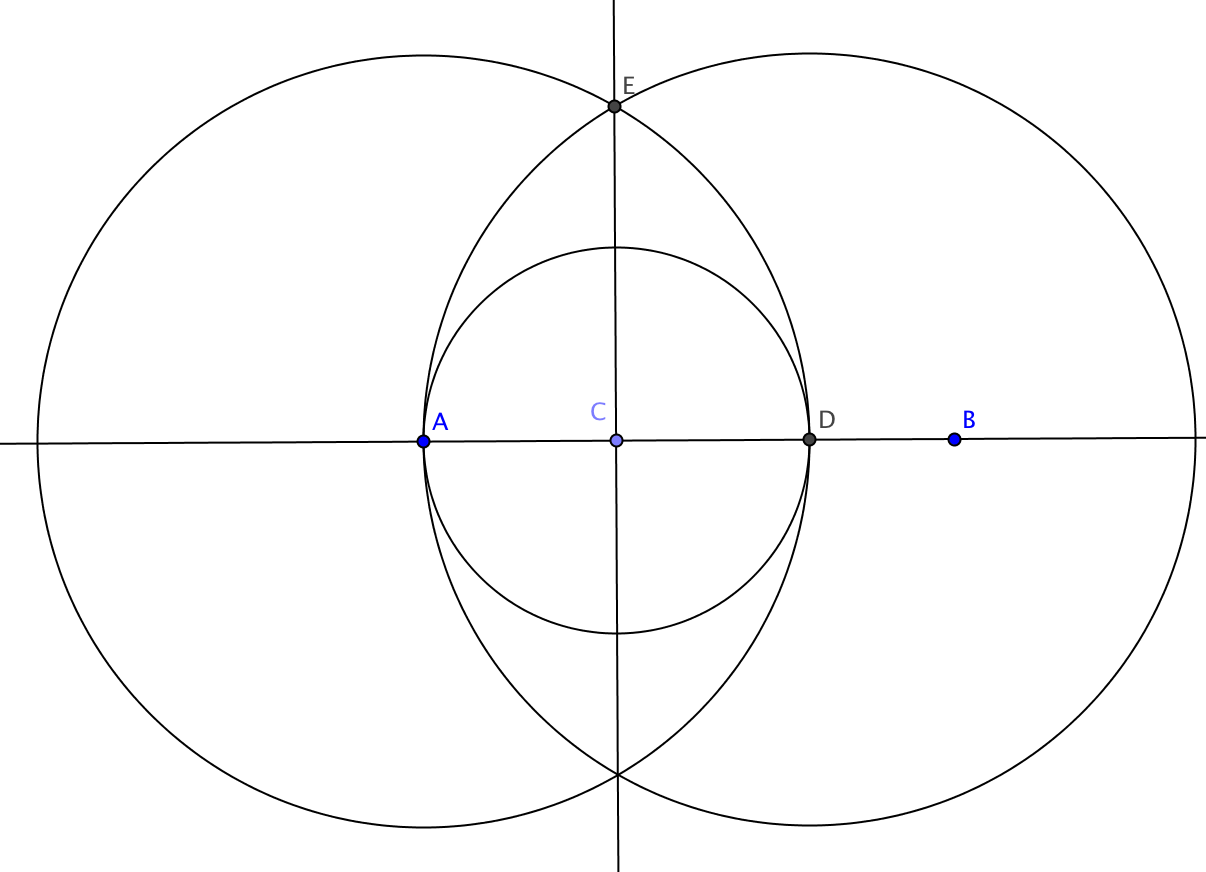
**Activity 2.7.3 Construction of a Line Perpendicular to a Line   
at a Point on the Line**

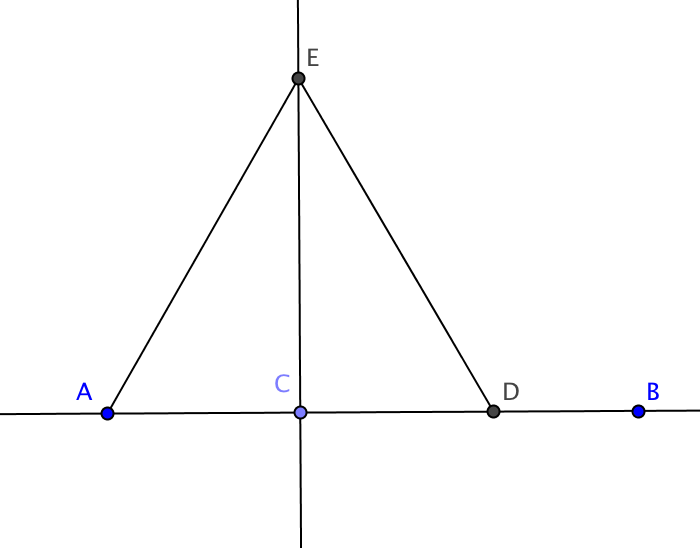


**Construction**

Given: Point *C* lies on .

To construct: a line through *C* that is   
perpendicular to .

Steps in the construction:

1. Construct the circle with center *C* passing through *A.*
2. Label the other point where the circle intersects as point *D*.
3. Construct the circle with center *A* passing through *D.*
4. Construct the circle with center *D* passing through *A.*
5. Label point *E*, one of the points where these last two circles intersect.
6. ****Draw the line through *C* and *E*.

Claim:

**Proof**

1. Construct segments and .
2. *CA = CB* because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. *AD = AE* because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. *DA = DE* because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. From step 3 and step 4 we conclude that *AE = DE*. Why?
6. *CE = CE* because of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ property
7. From steps 2, 5, and 6 we can show that ∆*ACE* ∆*DCE* using the \_\_\_\_\_\_\_ Congruence Theorem.
8. because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_