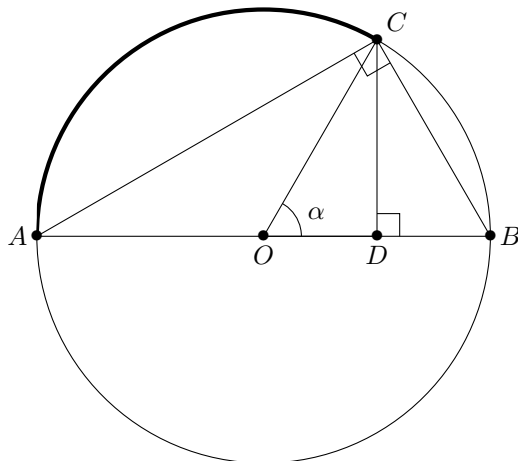


9. [7 points] Consider the circle of radius R centered at the point O , illustrated below. The diagram is not drawn at scale.



Note that the line AB contains the point O , and the angles ACB and ADC both have measure $\frac{\pi}{2}$ radians. α is the positive measure of the angle COD (see the diagram), while L is the length of the line segment AC .

- a. [2 points] Find the length of the line segment CD . Your answer for this part may involve any or all of the constants R , L and α .

The length of CD is _____

- b. [3 points] Find the (positive) measure of the angle OAC in radians. Your answer for this part may involve the constants R and L , but must **not** include the constant α .

The measure of OAC is = _____

- c. [2 points] Find the length of the (bolded) circular arc AC . Your answer for this part may involve any or all of the constants R , L and α .

The length of the arc AC is = _____