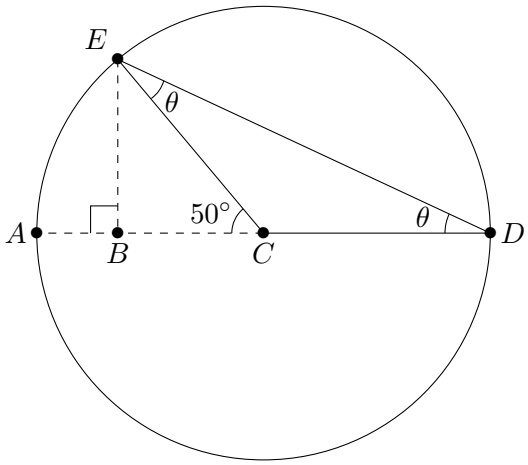
6. [14 points] Shown below is a circle of **diameter** 10 cm with center C.



Note that the line segment EB is perpendicular to the diameter AD.
Fill in the blanks in the following sentences. Give each answer in **exact** form using only numbers and/or trigonometric functions.

a. [2 points] $\theta =$ 25° (degrees).

b. [3 points] The length of the arc EA is $\frac{25}{18}\pi$ cm.

c. [3 points] The length of the line segment BC is $5\cos(50^\circ)$ or $5\sin(40^\circ)$ cm.

d. [2 points] The length of the line segment AB is $5 - 5\cos(50^\circ)$ cm.

e. [4 points] The length of the line segment DE is $\frac{5 + 5\cos(50^\circ)}{\cos(25^\circ)}$ or $\sqrt{(5\sin(50^\circ))^2 + (5 + 5\cos(50^\circ))^2}$ cm.

© 2018 Univ. of Michigan Dept. of Mathematics (Creative Commons By−NC−SA license)