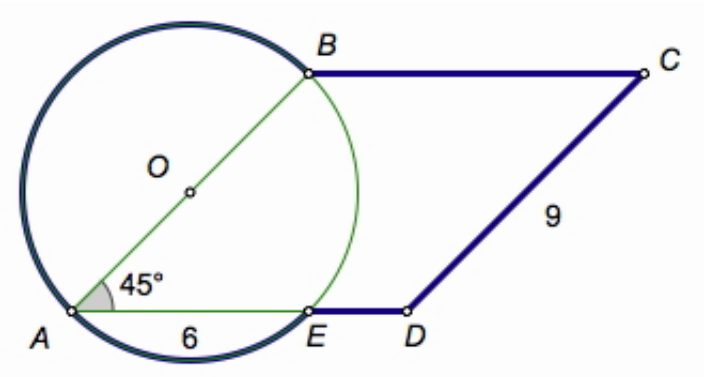
Math Forum - Problem of the Week

Fix This Picture [Problem #2871]

I found this problem in a GRE test preparation booklet. The GRE is the "Graduate Record Examination," a test much like the SAT that people take in college if they want to go to graduate school (at least in the United States). Here's the original problem:

> In the picture below, ABCD is a rhombus. O is the center of the circle. CD = 9. AE = 6. Angle BAD = 45 degrees. What's the length of the exterior of the figure, i.e. the path C - B - A - E - D - C?



The problem with the question is that the figure described can't actually exist! Your job is to explain why not. (There is more than one possibility, but you only need to find one.)

Extra: Correct the problem that you found above and find the resulting length of the bold path.

Note: Please leave all of your numbers and calculations in exact form, and also give a decimal approximation, rounded to two decimal places, for your "final" answers.

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