

How to Use a Ruler, Protractor, and Compass to Solve Hard AMC Geometry Problems --- A Typical Example

Henry Wan, Ph.D.

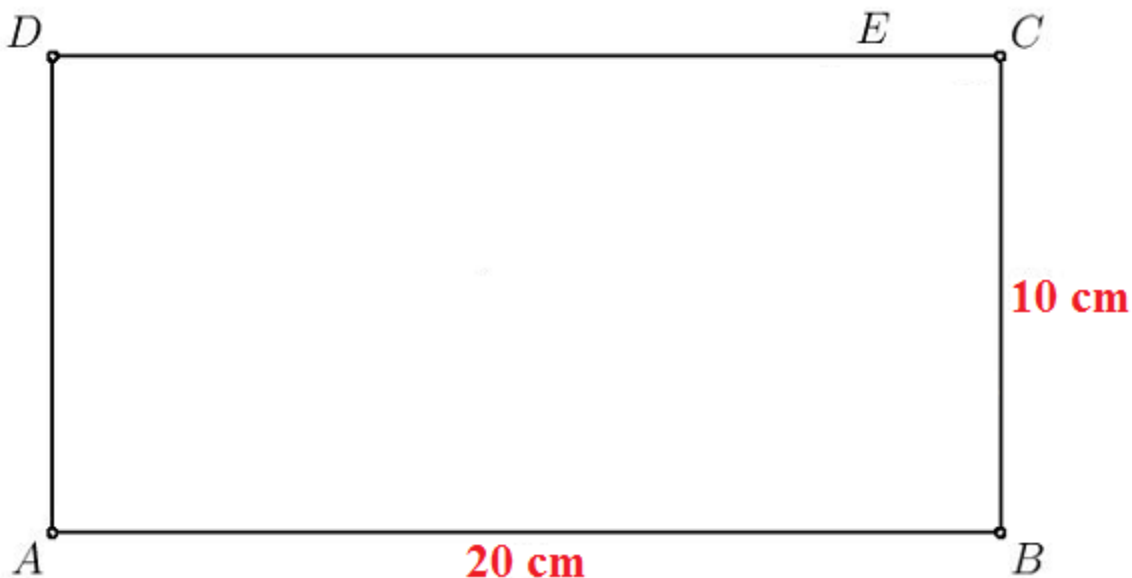
2014 AMC 10A #22

In rectangle $ABCD$, $AB = 20$ and $BC = 10$. Let E be a point on CD such that $\angle CBE = 15^\circ$. What is AE ?

- (A) $\frac{20\sqrt{3}}{3}$ (B) $10\sqrt{3}$ (C) 18 (D) $11\sqrt{3}$ (E) 20

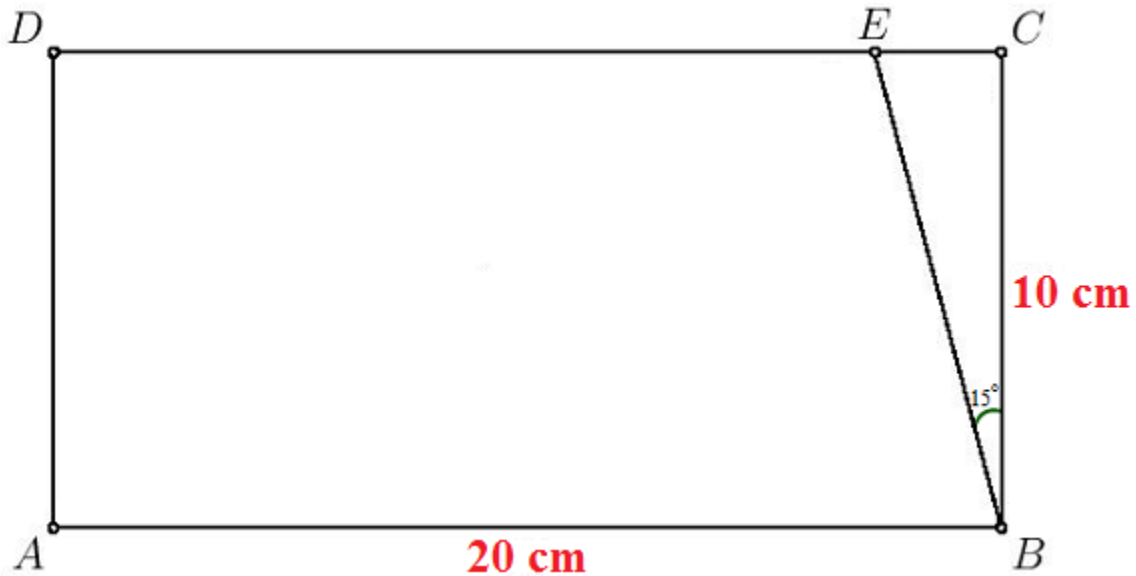
SOLUTION

Step 1: Use a ruler to construct a rectangle $ABCD$ with a length of 20 cm and a width of 10 cm as shown below.



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Step 2: Use a protractor to measure out the angle shown and draw the appropriate segment BE .



Step 3: Use a ruler to measure the length of AE , which is 20 cm. Choose (E) as the right answer.

It's as simple as that! Even a third grader could do it!