Triangle-Angle Bisector Theorem

1) Go to http://tube.geogebra.org/material/simple/id/3114485. A quick way to do this is simply to go to tube.geogebra.org and then type in the number **3114485** in the "Search Materials" bar.

2) Slide the slider slowly all the way to the right. Now change the positions of the triangle's vertices. Re-slide the slider slowly. Repeat these actions a few more times, making sure to change the locations of the triangle's vertices each time before re-sliding the slider.

3) In the beginning of this "story", what does $\overline{CD}$ do to $\angle ACB$? How can you tell?

4) What can you conclude about $\overline{CD}$ and $\overline{BE}$? Explain fully how & why you know this to be true.

5) Write an equation that expresses the relationship among $c_1, c_2, b,$ and d.

6) What theorem justifies the equation you wrote in (5)? Describe/explain this theorem fully.

7) What can you conclude about segments a and d? Describe/explain why you know this to be true.

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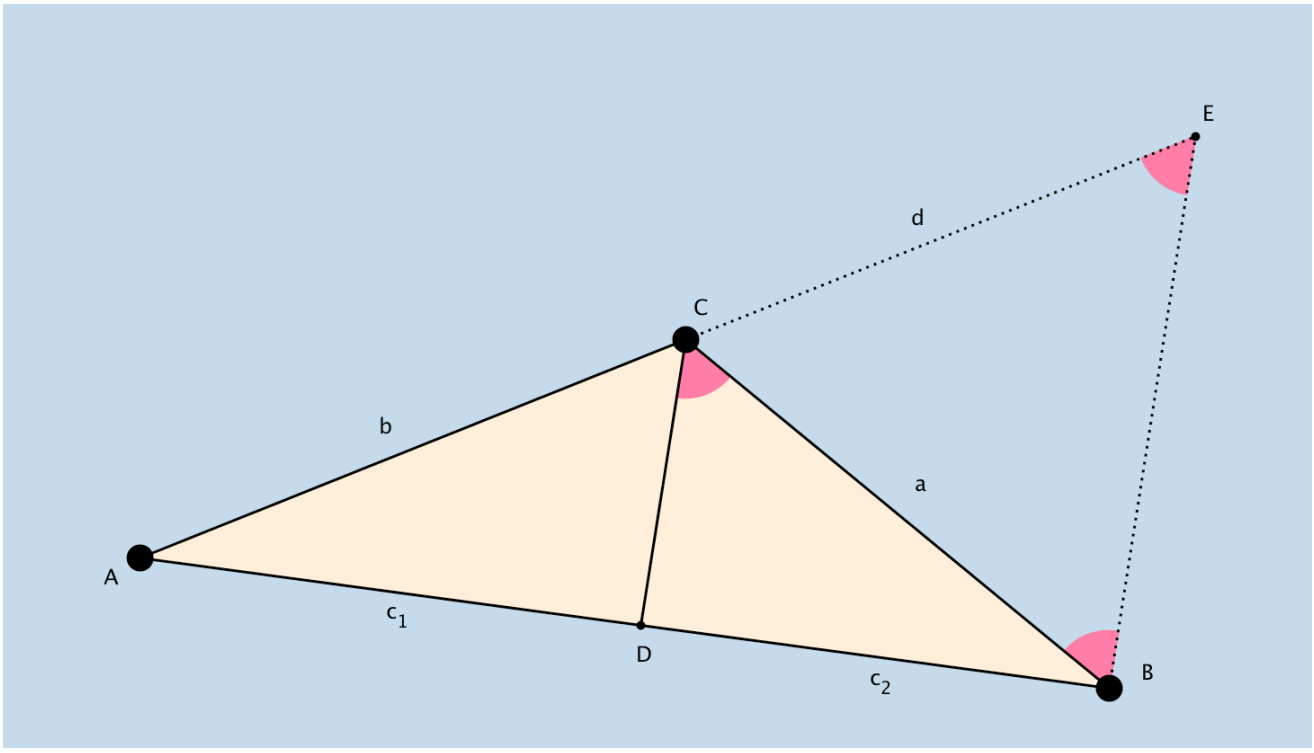
8) Use your conclusion from (7) to now write *another equation* that expresses the relationship among $c_1, c_2, b,$ and a.

This result is known as the **Triangle-Angle Bisector Theorem!**



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