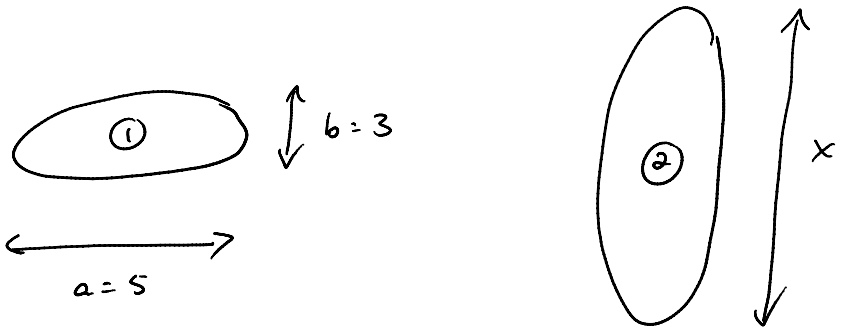
Section 6.2: cont'd

Thursday, January 08, 2015
11:32 AM

example: The two ellipses in the diagram below are similar. The area of the larger ellipse is exactly twice the area of the smaller one.



Calculate the length x as shown in the diagram. Give an exact answer.

$\text{Area}_2 = k^2 \text{ Area}_1$

$\text{Area}_2 = 2 \text{ Area}_1$

$k^2 = 2$

$k = \sqrt{2}$

$x = ka$

$= 5\sqrt{2}$

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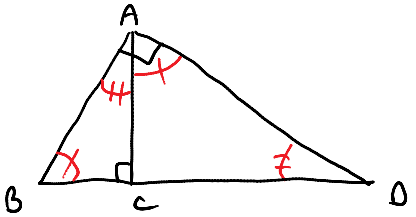
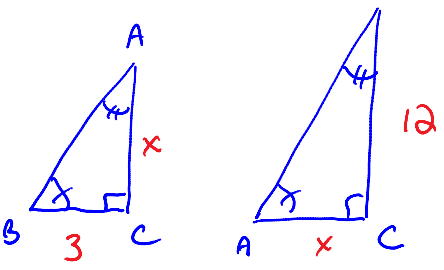
example: For the diagram below, calculate the length AC. In the diagram, BC = 3 and CD = 12.



D



$\triangle BAC \sim \triangle ADC$ by AAA

↑ don't forget this!

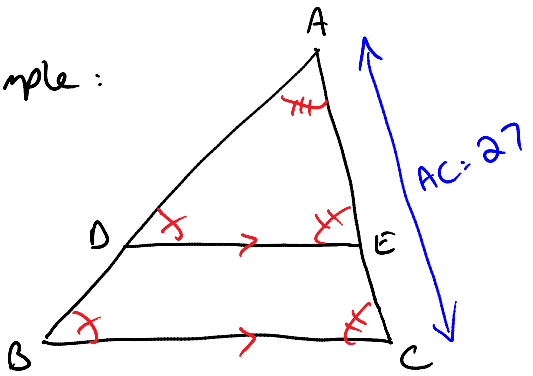
$k = \frac{AC}{BC} = \frac{DC}{AC}$

$\frac{x}{3} = \frac{12}{x}$

$x^2 = 36$

$x = 6$

example:



In the diagram, $BC \parallel DE$. Also, $AD = 28$, $AE = 21$, and $DB = 8$. Calculate EC.

$\triangle AED \sim \triangle ACB$ by AAA

$k = \frac{BA}{DA} = \frac{AC}{AE}$

$\frac{36}{28} = \frac{AC}{21}$

$AC = 27$

$\therefore EC = 6$

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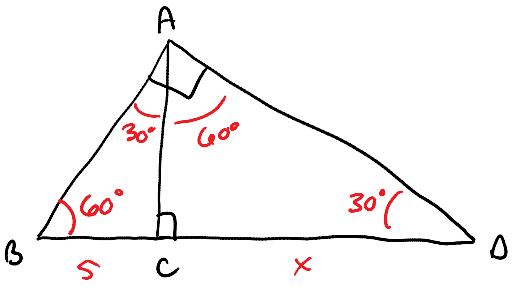
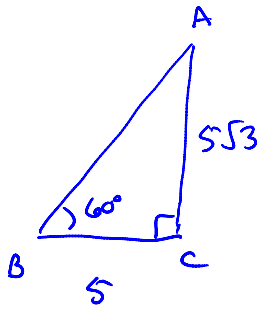
example:

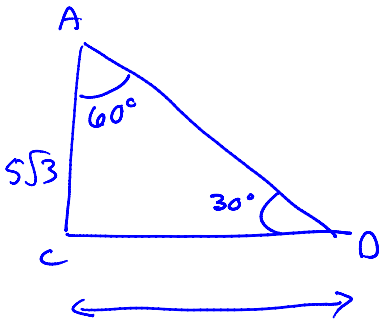


If $BC = 5$ and $\angle ABC = 60°$, calculate CD.

A A

method #1



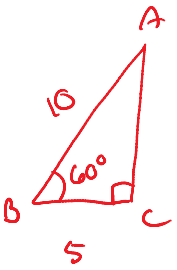


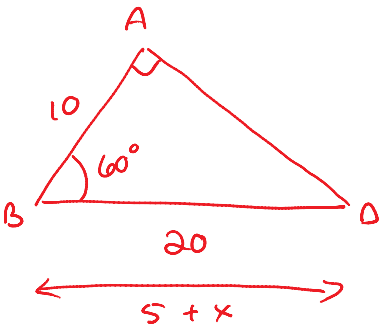
two 30-60-90 triangles

$x = (5\sqrt{3})(\sqrt{3})$

$= 15$

method #2:





$x = 15$