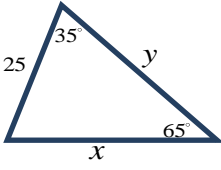
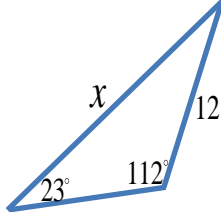
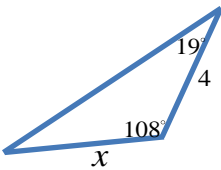
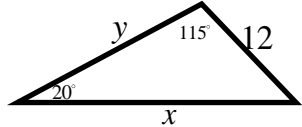
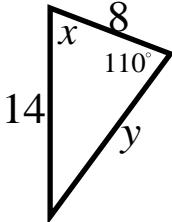
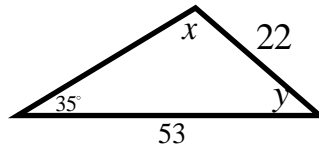
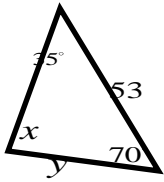
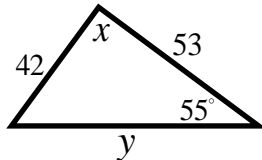
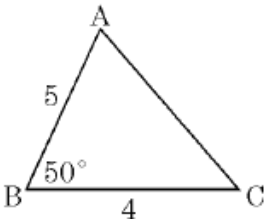
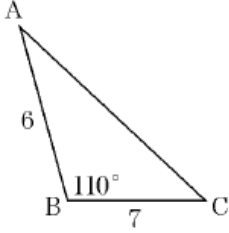
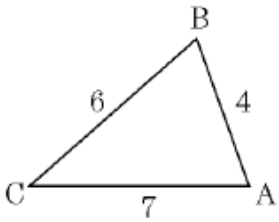
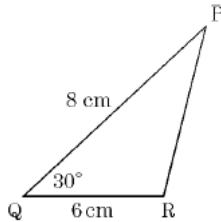


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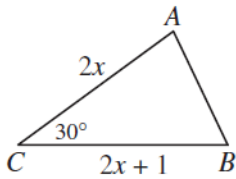
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Math 10/11 Honors Section 3.4 Sine Law and Cosine Law

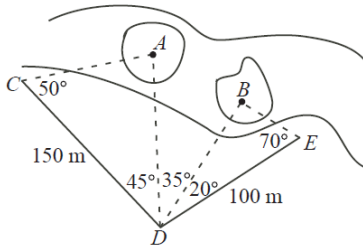
1. Given each triangle, find the value of any missing side or angle “x” and “y”

<p>a) $x =$ $y =$</p> 	<p>b) $x =$</p> 
<p>c) $x =$</p> 	<p>d) $x =$ $y =$</p> 
<p>e) $x =$ $y =$</p> 	<p>f) $x =$ $y =$</p> 
<p>g) $x =$ $y =$</p> 	<p>h) $x =$ $y =$</p> 
<p>a) $AC =$</p> 	<p>b) $BC =$</p> 
<p>c) $\angle B =$</p> 	<p>d) $PR =$</p> 

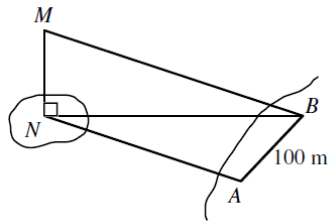
2. In the diagram, $AC = 2x$, $BC = 2x + 1$ and $\angle ACB = 30^\circ$. If the area of $\triangle ABC$ is 18, what is the value of "x"?



3. In the diagram, points A and B are located on islands in a river full of rabid aquatic goats. Determine the distance from A to B, to the nearest meter.

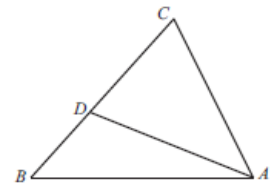


4. In determining the height, MN, of a tower on an island, two points A and B, 100 meters apart, are chosen on the same horizontal plane as "N". If $\angle NAB = 108^\circ$, $\angle ABN = 47^\circ$, and $\angle MBN = 32^\circ$, determine the height of the tower to the nearest meter.

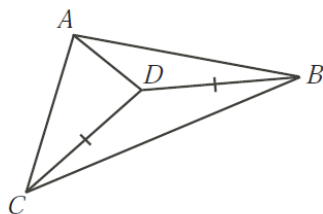


5. In triangle ABC, $\angle ABC = 45^\circ$. Point "D" is on \overline{BC} so that $2 \cdot BD = CD$ and $\angle DAB = 15^\circ$. Find $\angle ACB$.

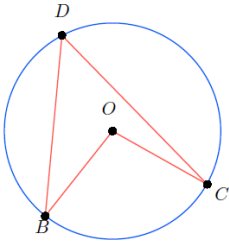
- a) 54° b) 60° c) 72° d) 75° e) 90°



6. In the diagram, $DC = DB$, $\angle DCB = 15^\circ$, and $\angle ADB = 130^\circ$. What is the measure of $\angle ADC$?



7. In the diagram, the circle has radius $\sqrt{7}$ and centre O. Points D, B, and C are on the circle. If $\angle BOC = 120^\circ$ and $DC = DB + 1$, determine the length of DB.

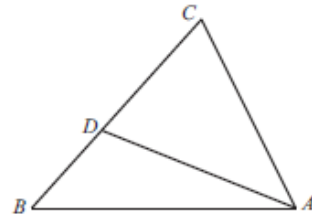


In $\triangle ABC$, $BC = 4$, $AB = x$, $AC = x + 2$, and $\cos(\angle BAC) = \frac{x+8}{2x+4}$. Determine all possible values of “x”.

8. In $\triangle ABC$, $BC = a$, $AC = b$, $AB = c$, and $a < \frac{1}{2}(b+c)$. Prove that $\angle BAC < \frac{1}{2}(\angle ABC + \angle ACB)$

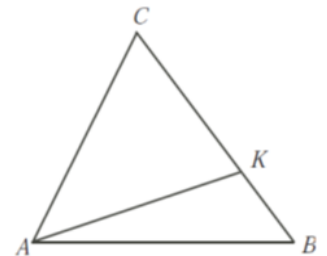
9. In triangle ABC, $\angle ABC = 45^\circ$. Point “D” is on \overline{BC} so that $2 \cdot BD = CD$ and $\angle DAB = 15^\circ$. Find $\angle ACB$

- a) 54° b) 60° c) 72° d) 75° e) 90°



10. Challenge: In the diagram, $2\angle BAC = 3\angle ABC$ and “K” lies on BC such that $\angle KAC = 2\angle KAB$. Suppose that $BC = a$, $AB = b$, $AC = c$, $AK = d$, and $BK = x$

- a) Prove that $d = \frac{bc}{a}$ and $x = \frac{a^2 - b^2}{a}$



- b) Prove that $(a^2 - b^2)(a^2 - b^2 + ac) = b^2c^2$