

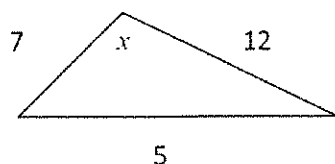
Law of Sines and Law of Cosines

Law of Sines: $\frac{a}{\sin a} = \frac{b}{\sin b} = \frac{c}{\sin c}$ or $\frac{\sin a}{a} = \frac{\sin b}{b} = \frac{\sin c}{c}$

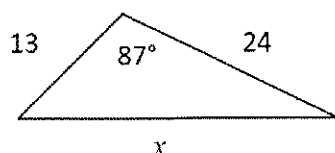
Law of Cosines: $a^2 = b^2 + c^2 - 2bc \cos A$

Law of Cosines is the best choice if:

Case 1: The length of all three sides of a triangle are known and you are trying to find an angle:

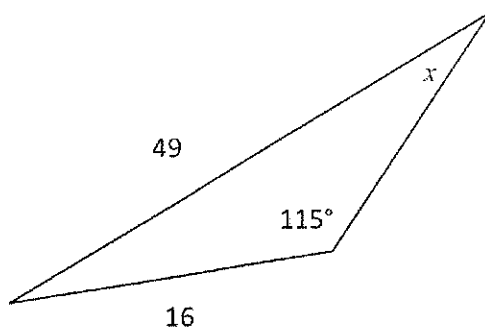


Case 2: Two sides and an enclosed angle are known and you are trying to find the side opposite the angle:

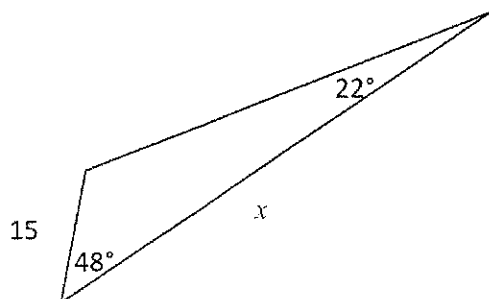


Law of Sines is the best choice if:

Case 3: Two sides and an angle opposite one of those sides is known and you are trying to find the other angle(s):



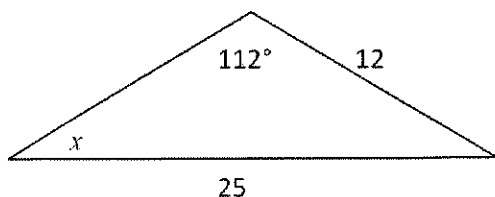
Case 4: Two angles and one side are known and you are trying to find the missing side(s):



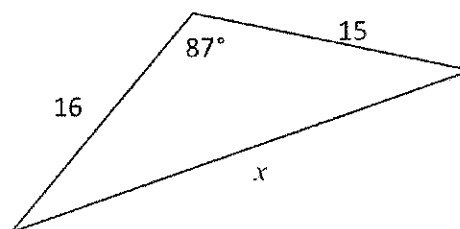
In general Law of Sines is easier to use so always check to see if you can use it first.

II. Determine whether the Law of Cosines or the Law of Sines is the best choice.

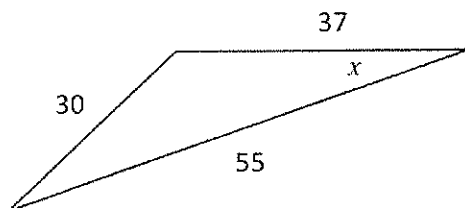
1. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



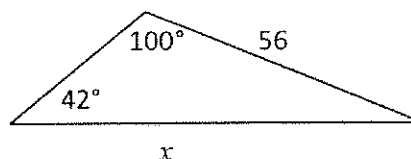
2. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



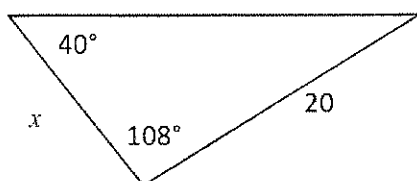
3. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



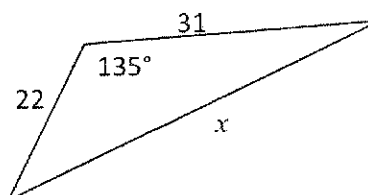
4. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



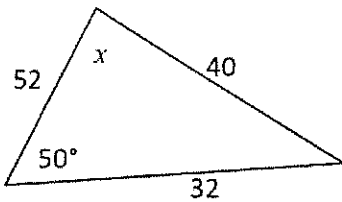
5. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



6. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



7. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).



9. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).

For $\triangle HJK$, $j = 31$, $m\angle H = 132^\circ$, $m\angle J = 21^\circ$, and $m\angle K = 27^\circ$. Find h to the nearest whole number.

8. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).

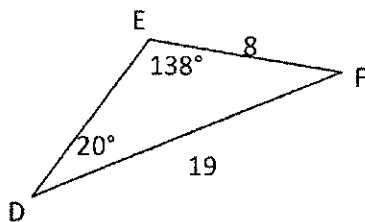
For $\triangle ABC$ find the length of b to the nearest hundredth, given $a = 17$, $c = 34$, and $m\angle B = 94^\circ$.

10. State whether the Law of Sines or Law of Cosines is the best choice to solve for x for the given figure. Substitute the values into the appropriate formula (do not solve).

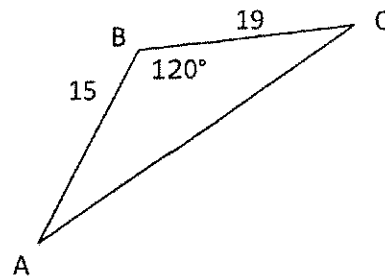
For $\triangle XYZ$ find the length of $m\angle Y$ to the nearest whole degree, given $x = 6$, $y = 9$, and $z = 12$.

III. Use the Law of Sines and Law of Cosines to find missing dimensions.

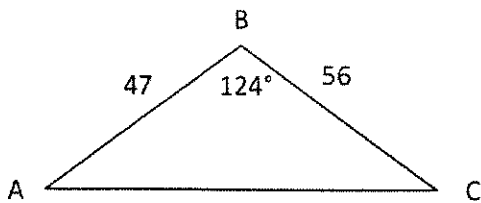
11. Find the missing dimensions of the triangle below. Round your answers to the nearest whole number.



12. Find the $m\angle C$ to the nearest whole degree.



13. Find the missing dimensions of the triangle below. Round your answers to the nearest whole number.



14. Find the f to the nearest whole number.

