

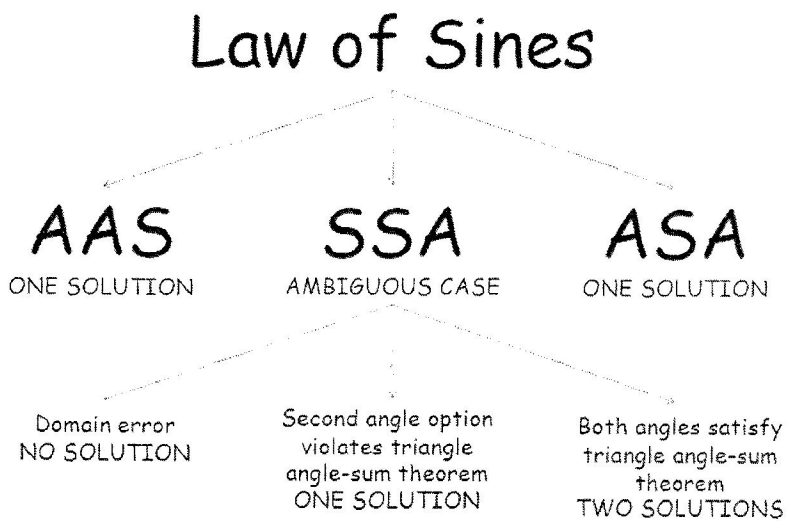
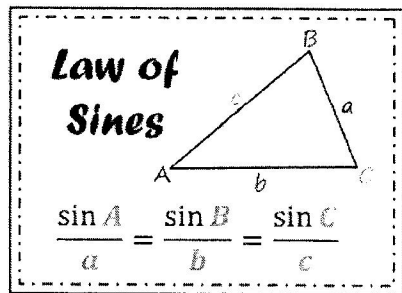
Name: _____

Unit 6: Trigonometric Identities/Law of Sines/Law of Cosines Pre-calculus (Spring 2019)

Day	Date	Topic	Homework
1	Thurs. 4/4	Law of Sines	
2	Fri. 4/5	Law of Cosines Area of a Triangle	
3	Mon. 4/8	Fundamental Identities	
4	Tues. 4/9	Simplifying & Proving Trig Identities	
5	Wed. 4/10	Solving Trig Equations	
6	Thurs. 4/11	Quiz Days 1-4	
7	Fri. 4/12	Extra Practice Unit 6	
		Spring Break 4/13-4/22	
8	Tues. 4/23	Sum & Difference Identities	
9	Wed. 4/24	Multiple & Half Angle Identities	
10	Thurs. 4/25	Review Unit 6	
11	Fri. 4/26	Unit 6 Test	

MATH TUTORIALS- TUESDAY (B) & THURSDAY (A)

The Law of Sines—used when given 2 angles and a side OR 2 consecutive sides and a non-included angle (ASA, AAS, or SSA)



Example 1 Solve $\triangle ABC$: $A = 50^\circ$, $B = 62^\circ$, and $a = 4$.

Example 2 Solve $\triangle PQR$: $P = 36^\circ$, $Q = 48^\circ$, and $p = 8$.

Example 3 Solve $\triangle ABC$: $A = 114^\circ$, $a = 21$, and $b = 32$.

Example 4 Solve $\triangle ABC$: $C = 97^\circ$, $c = 45$, and $a = 39$.

Example 5 Solve $\triangle ABC$: $A = 47^\circ$, $a = 20$, and $b = 12$.

Example 6 Solve $\triangle ABC$: $A = 36^\circ$, $b = 17$, and $a = 16$.

Example 7 A satellite passes over two tracking stations, A and B , 100 km apart. When the satellite is between the two stations the angle of elevation at the stations are measured as 84.5° and 88.2° respectively. What is the distance between the satellite and station A ? How high is the satellite of the ground?

Example 8 To find the distance across a river, a surveyor chooses points A and B , which are 200 ft. apart on one side of the river. She chooses a reference point C on the opposite side of the river and finds that $\angle BAC = 82^\circ$ and $\angle ABC = 52^\circ$. Find the distance across the river.

Solve each triangle. Round your answers to the nearest tenth.

1. $A = 126^\circ$, $B = 20^\circ$, $c = 18$

2. $A = 37^\circ$, $c = 19$, $a = 11$

3. $C = 27^\circ$, $b = 11$, $c = 9$

4. $B = 47^\circ$, $C = 28^\circ$, $a = 37$

5. $A = 50^\circ$, $c = 23$, $a = 6$

6. $B = 83^\circ$, $C = 43^\circ$, $a = 13$

7. $C = 48^\circ$, $A = 106^\circ$, $c = 17$

8. $C = 112^\circ$, $b = 24$, $c = 7$

9. Aliens are on their way to earth to abduct Mr. Smith and Ms. Powell in order to study brilliant earthlings. Mr. Smith looks due east and sees the UFO with an angle of elevation of 40° . At the same time Ms. Powell is 1 mile due west of Mr. Smith. When Ms. Powell looks due east she sees the same UFO at an angle of elevation of 25° . Find the distance between Mr. Smith and the UFO. How far is the UFO above the ground?

10. Two lookout towers, L and M, are 50 km apart. The ranger in tower L sees a fire at point C such that $m\angle CLM = 40^\circ$. The ranger in tower M sees the same fire such that $m\angle CML = 65^\circ$. How far is the fire from tower L?

11. An aircraft is spotted by 2 observers who are 1000 feet apart. As the airplane passes over the line joining them, each observer takes a sighting of the angle of elevation to the plane. Person A, who is on the left, measures his sighting to be 40° , whereas person B has a sighting of 35° . How high is the airplane?

12. Tucker and Lilly are standing at the seashore 10 miles apart. The coastline is a straight line between them. Both can see the same ship in the water. The angle between the coastline and the line between the ship and Tucker is 35° . The angle between the coastline and the line between the ship and Lilly is 45° . How far are Tucker and Lilly from the ship?

13. Find BC.

