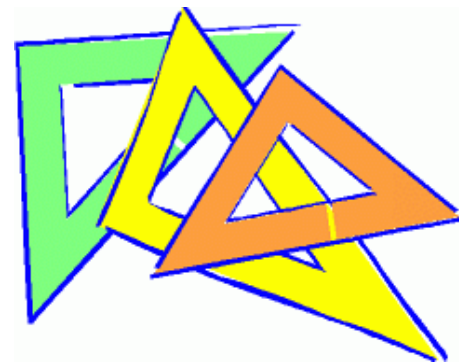


Unit 9.1-9.4 – Applications of Trigonometric Functions

By the end of this unit, you should be able to:

- ☐ solve a right triangle using right triangle trig
- ☐ solve a triangle (SAA, ASA, SSA) using Law of Sines
- ☐ solve a triangle (SAS, SSS) using Law of Cosines
- ☐ solve for sides/angles of triangles in an application
- ☐ find the area of a triangle
- ☐ find the area of a triangle in an application



Assignments:

9.1 – Solving Right Triangles – pg. 673 #17, 21, 27, 36
9.2 – Law of Sines – pg. 682 #11, 13, 21, 26, 29, 30, 35, 39, 41, 43, 47, 53
9.3 – Law of Cosines – pg. 689 #11, 13, 21, 31, 33, 35, 36, 37, 39, 43
9.4 – Area of a Triangle – pg. 694 #7, 9, 17, 23, 33, 35, 38, 40

Review Problems

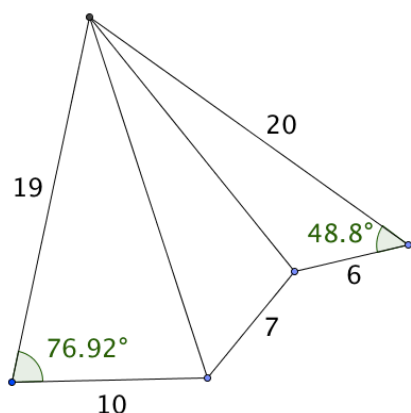
#1-8 Solve the triangle.

- | | |
|--|---------------------------------------|
| 1. $a = 5$, $A = 35^\circ$, $C = 90^\circ$ | 2. $a = 3$, $b = 1$, $C = 90^\circ$ |
| 3. $A = 10^\circ$, $C = 40^\circ$, $c = 2$ | 4. $a = 2$, $b = 3$, $A = 20^\circ$ |
| 5. $a = 3$, $b = 5$, $B = 80^\circ$ | 6. $a = 2$, $c = 5$, $A = 60^\circ$ |
| 7. $a = 4$, $b = 1$, $C = 100^\circ$ | 8. $a = 10$, $b = 7$, $c = 8$ |

9. Juan and Romella 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 Juan is 35 degrees. The angle between the coastline and the line between the ship and Romella is 45 degrees. How far is the ship from the shore?

10. Ralph walks for 10 feet, then turns to his left (some arbitrary angle) and walks 16 feet in that direction. He stops to look back to his starting point and has to turn at an angle of 30° to face that spot. After some calculations, Bridgette says that Ralph's turn was a 23° angle and Westin says that Ralph's turn was a 97° angle. Who is correct? Explain.

11. Find the area of the entire figure.



12. A pilot is flying from Houston to Oklahoma City. To avoid a thunderstorm, the pilot flies 28° off of the direct route for a distance of 175 miles. He then makes a turn and flies straight on to Oklahoma City.

- Through what angle should the pilot turn to correct the course?
- To the nearest mile, how much farther than the direct route was the route taken by the pilot?
- The pilot was traveling 175 mph until he hit the turning point. What new constant speed should the pilot maintain so that no time would be lost if he planned to fly the direct route at a rate of 175mph?

