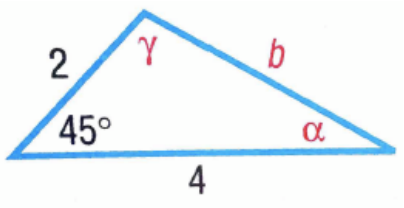
HOMEWORK: LAW OF COSINES

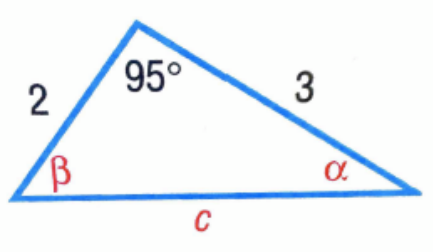
NAME: _____ DAY 3 DUE: _____

Solve each triangle.

1.



2.

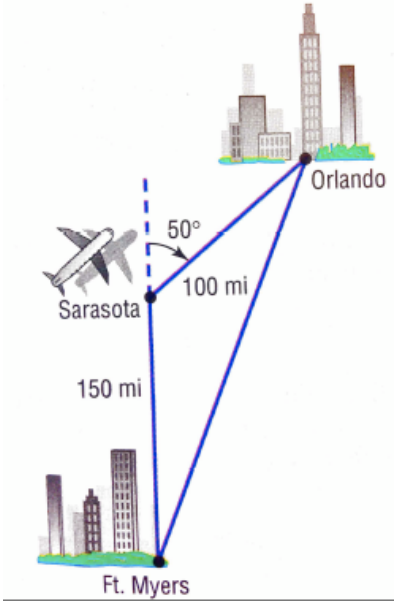


3. a = 3, b = 4, $\gamma = 40°$.

4. b = 1, c = 3, $\alpha = 80°$.

5. A cruise ship maintains an average speed of 15 knots in going from San Juan, Puerto Rico, to Barbados, West Indies, a distance of 600 nautical miles. To avoid a tropical storm, the captain heads out of San Juan in a direction of $20°$ off a direct heading to Barbados. The captain maintains the 15-knot speed for 10 hours, after which time the path to Barbados becomes clear of storms.

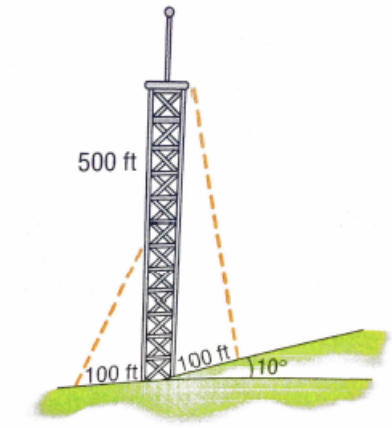
a) Through what angle should the captain turn to head directly to Barbados?



b) Once the turn is made, how long will it be before the ship reaches Barbados if the same 15-knot speed is maintained?

6. The height of a radio tower is 500 feet, and the ground on one side of the tower slopes upward at an angle of $10°$.

a) How long should a guy wire be if it is to connect to the top of the tower and be secured at a point on the sloped side 100 feet from the base of the tower?

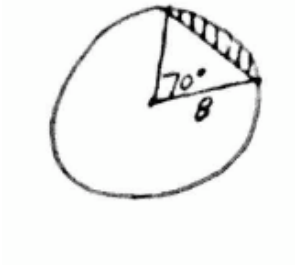


b) How long should a second guy wire be if it is to connect to the middle of the tower and be secured at a point 100 feet from the base on the flat side?

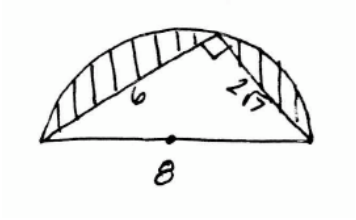
7. Find the area: a = 6, b = 5, c = 8

8. Find the area: a = 2, b = 2, c = 2

9. Find the area of the shaded region.



10. Find the area of the shaded region.



11. Find the area of the shaded region as a function of the central angle θ.