

Name: _____ Class: _____ Date: _____

ID: A

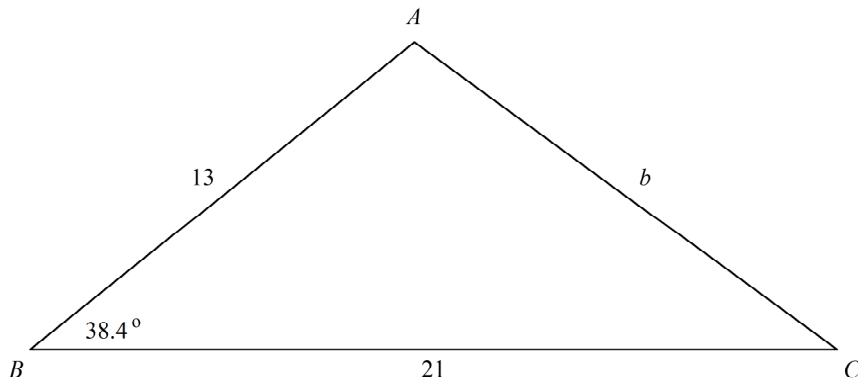
Algebra 2 (A/B) Quiz 13.6 - Law of Cosine

Be sure to show all your work for each problem.

1. (0 points)
Formulas:

Law of Cosine: $a^2 = b^2 + c^2 - 2 \cdot b \cdot c \cdot \cos A$ Law of Sine: $\frac{\sin A}{a} = \frac{\sin B}{b}$

2. (10 points)
Use the given measurements to solve $\triangle ABC$. Round to the nearest tenth.



$m\angle A =$ _____ $m\angle C =$ _____ $b =$ _____

3. (10 points)

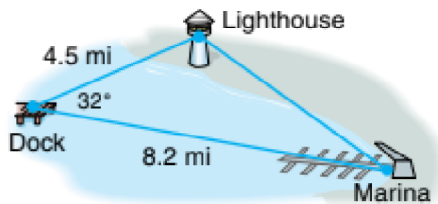
Two airplanes leave the airport at the same time. One airplane flies due east at a speed of 300 miles per hour. The other airplane flies east-northeast at a speed of 350 miles per hour (the angle between the two directions is 22.5°). If the planes are at the same altitude, how far apart are they after 1 hour? Round your answer to the nearest mile.

A). Sketch and label a diagram for the airplanes.

B). Show your work to find the distance between the two planes after 1 hour.

4. (10 points)

Given the measurements of the lake shown below, show your work to find:



A). the distance from the lighthouse to the marina.

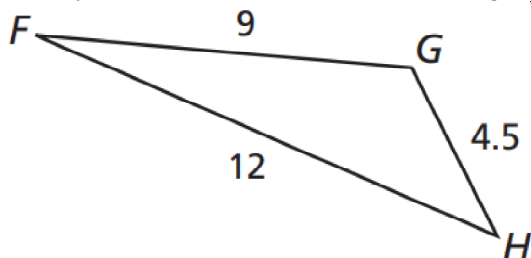
B). the angle at the lighthouse.

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5. (10 points)

Show your work to find the measure of angle F in the triangle. Round to the tenth.



$m\angle F =$ _____

6. (10 points)

Use the given measurements to solve $\triangle ABC$. Round to the tenth.

$m\angle A = 120^\circ$, $b = 16$, $c = 20$ (Hint: sketch and label the triangle first)

$m\angle B =$ _____, $m\angle C =$ _____, $a =$ _____