1.) Use the Law of Sines to find the indicated part of ΔABC. Round lengths to the nearest hundredth and angles to the nearest tenth of a degree. If there are two solutions, give both of them. If there is no solution, write "No Solution." (p. 461, #1 & #11)

a) $A = 32^0, B = 50^0, a = 16$, find *c*

b) $C = 50^0, a = 25, c = 22$, find A

2.) Below is a picture of an isosceles triangle. The two legs meet at a 31^0 angle; the base is 200 meters long. Find the length of the legs. Then find the area of the triangle.

3.) Use the Law of Cosines to find the indicated part of ΔABC. Round lengths to the nearest hundredth and angles to the nearest tenth of a degree. If there are two solutions, give both of them. If there is no solution, write "No Solution". (p. 461, #21 & #27)

a) $a = 18, b = 12, c = 15$, find B

b) $C = 65^0, a = 25, b = 12$, find c

4.) The minute hand on a certain clock is 12 cm; the hour hand is 9 cm. A person who really loves math decided to measure the distance between the two tips one day and discovered that the tips were 20 cm apart. But this wasn't enough for our math nerd. She also wanted to find the angle that the two hands made (who wouldn't?). Now you find that angle, too. Hint: **DRAW IT OUT**. (p. 461, #23)

5.) $\overrightarrow{PQ}$ has an initial point (3, -5) and a terminal point (-2, 7).

a. Find the component form of the vector $\overrightarrow{PQ}$ then sketch the vector in standard position.

b. Find the magnitude of $\overrightarrow{PQ}$.

c. Find a unit vector in the direction of $\overrightarrow{PQ}$.

d. Find a vector v with a magnitude of 8 in the direction of $\overrightarrow{PQ}$.

e. Find the direction angle of $\overrightarrow{PQ}$ where $0^o \le \theta < 360^o$.

6.) Find all solutions in the interval [0, 2pi) $3\tan^2 x = 1$

7.) Given **u=j** and **v**= 2**i**-3**j**, find 1/2**u** – 2/3**v**

8.) Given tanx=3/4 and 0<x<pi/2, and secy = 5/3 and 3pi/2<y<2pi find sin(x + y)

9.) Given a triangle with sides b=12, c=8, and <A=115 degrees, find side a