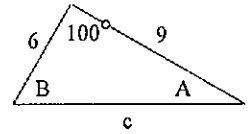


Student: \_\_\_\_\_  
Date: \_\_\_\_\_

Instructor: Joe Better's  
Course: Pre-Calculus Pre AP (Master Course)

Assignment: 8.3 Classwork Day 2

1. Solve the triangle.



Solve for the value of each unknown.

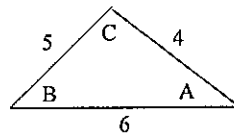
$c =$  \_\_\_\_\_ (Round to two decimal places as needed.)

$A =$  \_\_\_\_\_  $^\circ$  (Round to one decimal place as needed.)

$B =$  \_\_\_\_\_  $^\circ$  (Round to one decimal place as needed.)

- 2.

Solve the triangle.



Solve for the value of each unknown.

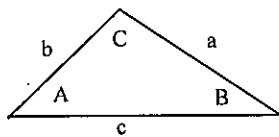
$A =$  \_\_\_\_\_  $^\circ$  (Round to one decimal place as needed.)

$B =$  \_\_\_\_\_  $^\circ$  (Round to one decimal place as needed.)

$C =$  \_\_\_\_\_  $^\circ$  (Round to one decimal place as needed.)

3. Solve the triangle.

$a = 2, b = 2, C = 10^\circ$



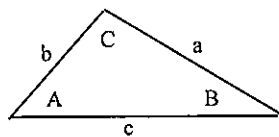
$c \approx$  \_\_\_\_\_ (Round to two decimal places as needed.)

$A \approx$  \_\_\_\_\_  $^\circ$   
(Type your answer in degrees. Round to one decimal place as needed.)

$B \approx$  \_\_\_\_\_  $^\circ$   
(Type your answer in degrees. Round to one decimal place as needed.)

4. Solve the triangle.

$a = 9, b = 7, c = 4$



$A \approx$  \_\_\_\_\_  $^\circ$   
(Type your answer in degrees. Round to one decimal place as needed.)

$B \approx$  \_\_\_\_\_  $^\circ$   
(Type your answer in degrees. Round to one decimal place as needed.)

$C \approx$  \_\_\_\_\_  $^\circ$   
(Type your answer in degrees. Round to one decimal place as needed.)

5. Solve the following triangle using either the Law of Sines or the Law of Cosines.

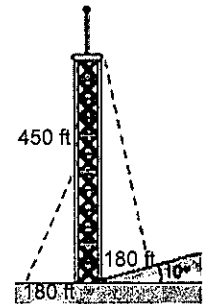
$$b = 8, c = 16, A = 101^\circ$$

Select the correct choice below and, if necessary, fill in the answer boxes to complete your choice. (Round to two decimal places as needed.)

- A. There is only one possible solution for the triangle.  
The measurements for the remaining side  $a$  and angles  $B$  and  $C$  are as follows.  
 $a \approx$  \_\_\_\_\_  $B \approx$  \_\_\_\_\_ $^\circ$   $C \approx$  \_\_\_\_\_ $^\circ$
- B. There are two possible solutions for the triangle.  
The measurements for the solution with the smaller angle  $B$  are as follows.  
 $a_1 \approx$  \_\_\_\_\_  $B_1 \approx$  \_\_\_\_\_ $^\circ$   $C_1 \approx$  \_\_\_\_\_ $^\circ$   
The measurements for the solution with the larger angle  $B$  are as follows.  
 $a_2 \approx$  \_\_\_\_\_  $B_2 \approx$  \_\_\_\_\_ $^\circ$   $C_2 \approx$  \_\_\_\_\_ $^\circ$
- C. There are no possible solutions for this triangle.

6. The height of a radio tower is 450 feet, and the ground on one side of the tower slopes upward at an angle of  $10^\circ$ .

- (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 180 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 180 feet from the base on the flat side?



- (a) What is the length of the first guy wire?

\_\_\_\_\_ feet  
(Do not round until the final answer. Then round to one decimal place as needed.)

- (b) What is the length of the second guy wire?

\_\_\_\_\_ feet  
(Do not round until the final answer. Then round to one decimal place as needed.)

1. 11.65

30.5

49.5

2. 55.8

41.4

82.8

3. 0.35

85.0

85.0

4. 106.6

48.2

25.2

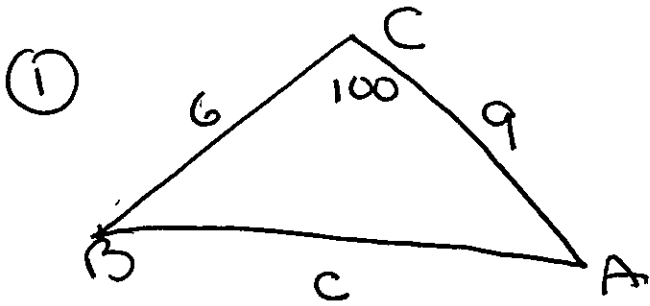
5. A. There is only one possible solution for the triangle.

The measurements for the remaining side  $a$  and angles  $B$  and  $C$  are as follows. $a \approx \underline{19.21}$        $B \approx \underline{24.14}^\circ$        $C \approx \underline{54.86}^\circ$ 

6. 454.7

288.1

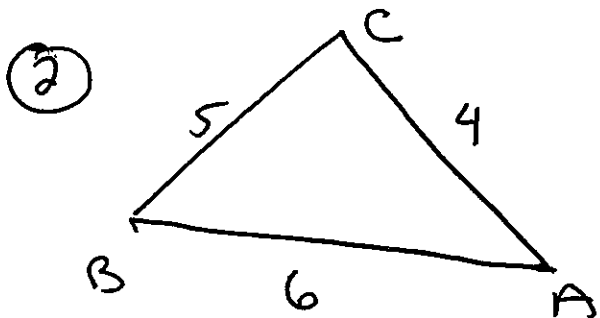
## 8.3 on day 2



$$c^2 = 6^2 + 9^2 - 2(6)(9)\cos 100 \quad \boxed{c = 11.65}$$

$$\frac{\sin 100}{11.65} = \frac{\sin A}{6} \quad \boxed{A = 30.5^\circ}$$

$$180 - 100 - 30.5 = \boxed{B = 49.5^\circ}$$



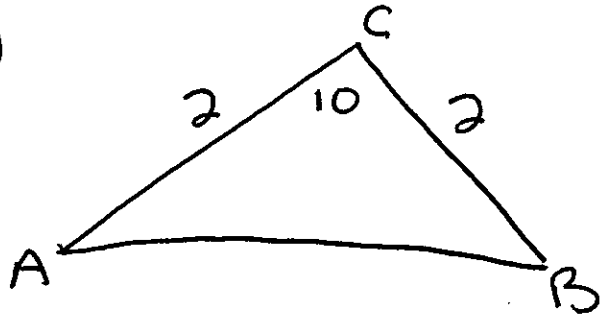
$$6^2 = 5^2 + 4^2 - 2(5)(4)\cos C \quad \boxed{C = 82.8^\circ}$$

$$\frac{\sin 82.8}{6} = \frac{\sin A}{5} \quad \boxed{A = 55.8^\circ}$$

$$180 - 82.8 - 55.8 = \boxed{B = 41.4^\circ}$$

8.3 on day 2

③



$$c^2 = 2^2 + 2^2 - 2(2)(2)\cos 10$$

$$C = .35$$

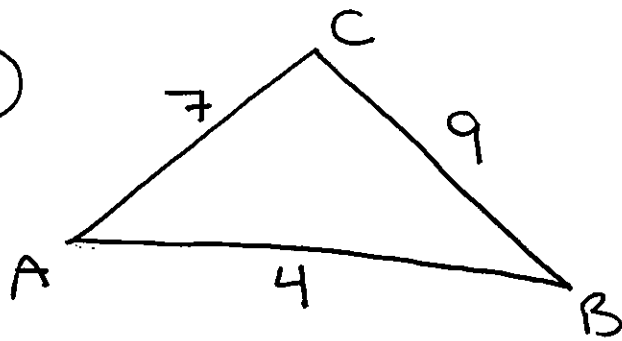
~~Isosceles~~ \* Isosceles \*

$$\frac{180 - 10}{2} = 85^\circ$$

$$\begin{array}{|l} A = 85^\circ \\ B = 85^\circ \end{array}$$

## 8.3 w day 2

④



$$9^2 = 7^2 + 4^2 - 2(7)(4) \cos A$$

$$A = 106.6^\circ$$

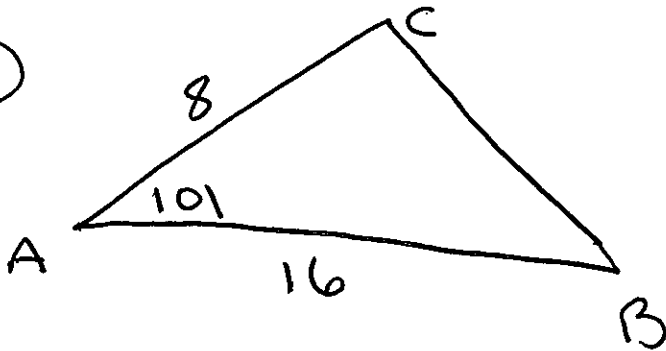
$$\frac{\sin 106.6}{9} = \frac{\sin B}{7}$$

$$B = 48.2^\circ$$

$$180 - 106.6 - 48.2 = 25.2^\circ = C$$

8.3 cw day 2

⑤



$$a^2 = 16^2 + 8^2 - 2(16)(8)\cos 101 \quad \boxed{a = 19.2}$$

$$\frac{\sin 101}{19.2} = \frac{\sin B}{8} \quad \boxed{B = 24.14^\circ}$$

$$180 - 101 - 24.14 = \boxed{54.86 = C}$$

\* since one angle given, check for other solutions \*

~~180 - 24.14 = 155.86~~  
 $180 - 24.14 = 155.86$   
 $+ 101 \rightarrow A$   

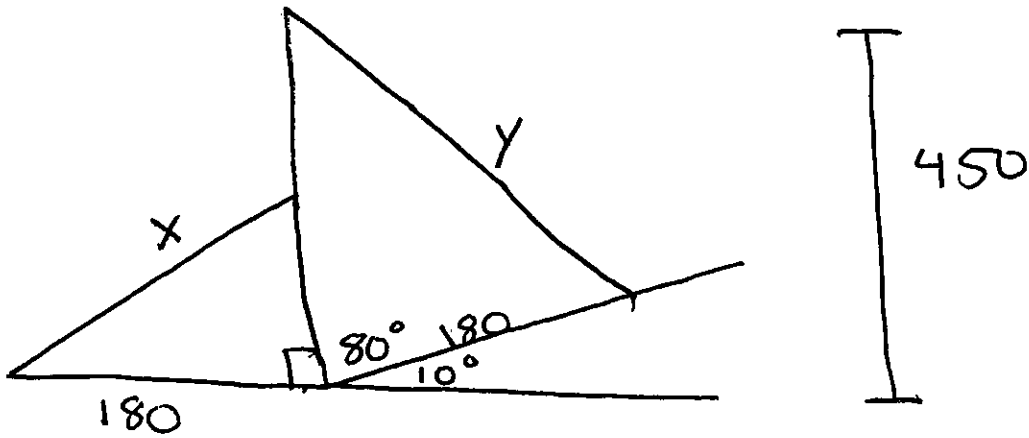
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 $\text{over } 180^\circ$

$\boxed{* \text{ so only } 1 \Delta}$

8.3 w day 2

⑥



$$y^2 = 180^2 + 450^2 - 2(180)(450)\cos 80$$

$$y = 454.7$$

$$x^2 = 180^2 + \left(\frac{450}{2}\right)^2 - 2(180)\left(\frac{450}{2}\right)\cos 90$$

$$x = 288.1$$