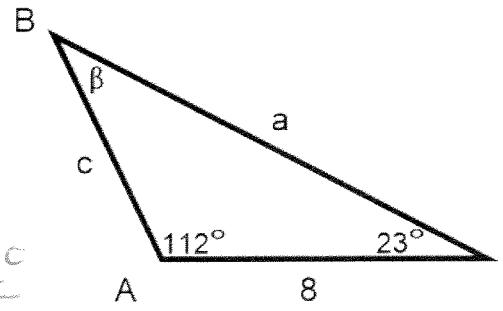
Name Mike Date _____

Math 112: #25 A/B/C/D

A) Solve the triangle below. For all the missing quantities, state the exact answer and the give a decimal answer to two decimal places.



$\beta = 45°$

$\frac{\sin 45°}{8} = \frac{\sin 112°}{a}$

$a \sin 45° = 8 \sin 112°$

$a = \frac{8 \sin 112°}{\sin 45°}$ exact answer

$a = 10.454 = 10.49$

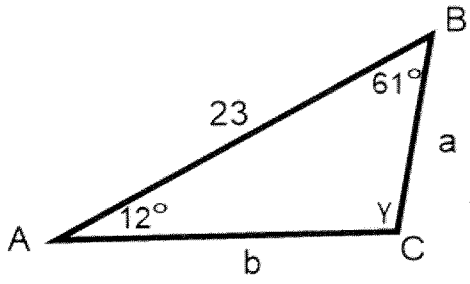
$\frac{\sin 45°}{8} = \frac{\sin 23°}{c}$

$c \sin 45° = 8 \sin 23°$

$c = \frac{8 \sin 23°}{\sin 45°}$ exact answer

$c = 4.42$

B)



$\gamma = 107°$

$\frac{\sin 107°}{23} = \frac{\sin 12°}{a}$

$a \sin 107° = 23 \sin 12°$

$a = \frac{23 \sin 12°}{\sin 107°}$

$a = 5.00$

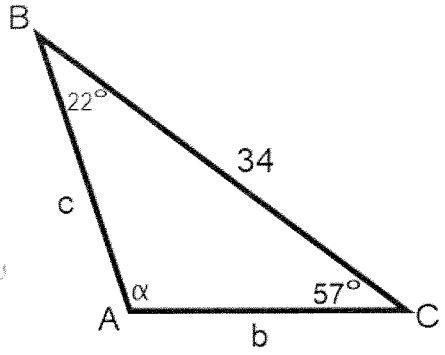
$\frac{\sin 107°}{23} = \frac{\sin 61°}{b}$

$b \sin 107° = 23 \sin 61°$

$b = \frac{23 \sin 61°}{\sin 107°}$

$b = 21.04$

C)



$\alpha = 101^\circ$

$\frac{\sin 101^\circ}{34} = \frac{\sin 22^\circ}{b}$

$\frac{b \sin 101^\circ}{\sin 101^\circ} = \frac{34 \sin 22^\circ}{\sin 101^\circ}$

$b = \frac{34 \sin 22^\circ}{\sin 101^\circ}$

$b = 12.98$

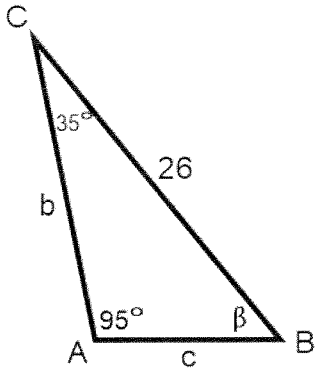
$\frac{\sin 101^\circ}{34} = \frac{\sin 57^\circ}{c}$

$c \sin 101^\circ = 34 \sin 57^\circ$

$c = \frac{34 \sin 57^\circ}{\sin 101^\circ}$

$c = 29.05$

D)



$\frac{\sin 95^\circ}{26} = \frac{\sin 50^\circ}{b}$

$b \sin 95^\circ = 26 \sin 50^\circ$

$b = \frac{26 \sin 50^\circ}{\sin 95^\circ}$

$b = 19.99$

$\beta = 50^\circ$

$\frac{\sin 95^\circ}{26} = \frac{\sin 35^\circ}{c}$

$c \sin 95^\circ = 26 \sin 35^\circ$

$c = \frac{26 \sin 35^\circ}{\sin 95^\circ}$

$c = 14.97$