

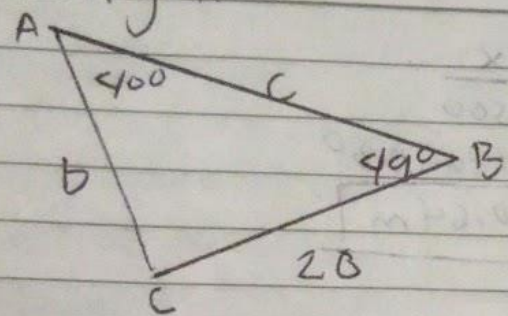
Angeles City Science High School

Mathematics 9

Name: Paul Gerald D. Pare  
Adenine

Section: 9 -

Activity A

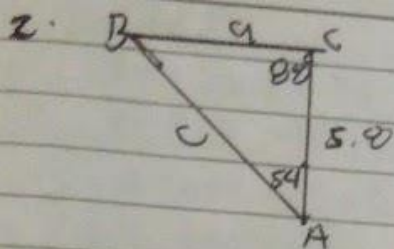
1. 

Given:

$A = 40^\circ$ ,  $a = 20$ ,  $B = 49^\circ$

$C = 180 - (49 + 40)$   
 $C = 180 - 89$   
 $C = 91^\circ$

$\rightarrow \frac{20}{\sin 40^\circ} = \frac{b}{\sin 49^\circ}$ $\rightarrow \frac{20 \sin 49^\circ}{\sin 40^\circ} = \frac{b \sin 40^\circ}{\sin 40^\circ}$ $\rightarrow \boxed{b = 23.48 \text{ units}}$	$\frac{20}{\sin 40^\circ} = \frac{c}{\sin 91^\circ}$ $\frac{20 \sin 91^\circ}{\sin 40^\circ} = \frac{c \sin 40^\circ}{\sin 40^\circ}$ $\boxed{c = 31.11 \text{ units}}$
---	---



$$B = 180 - (88 + 54)$$

$$B = 180 - 142$$

$$\boxed{B = 38^\circ}$$

$$\rightarrow \frac{5.8}{\sin 38^\circ} = \frac{a}{\sin 54^\circ}$$

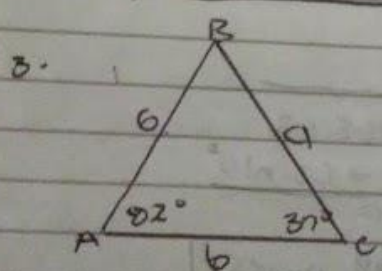
$$\rightarrow \frac{5.8 \sin 54^\circ}{\sin 38^\circ} = a \sin 38^\circ$$

$$\rightarrow \boxed{a = 7.62 \text{ units}}$$

$$\frac{5.8}{\sin 38^\circ} = \frac{c}{\sin 88^\circ}$$

$$\frac{5.8 \sin 88^\circ}{\sin 38^\circ} = c \sin 38^\circ$$

$$\boxed{c = 9.42 \text{ units}}$$



$$\frac{6}{\sin 37^\circ} = \frac{a}{\sin 42^\circ}$$

$$\frac{6 \sin 42^\circ}{\sin 37^\circ} = a \sin 37^\circ$$

$$\boxed{a = 9.87 \text{ units}}$$

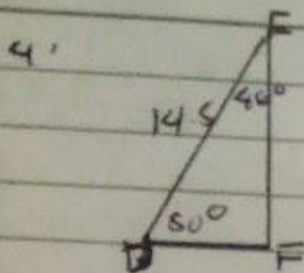
$$\frac{6}{\sin 37^\circ} = \frac{b}{\sin 61^\circ}$$

$$\frac{6 \sin 61^\circ}{\sin 37^\circ} = b \sin 37^\circ$$

$$\boxed{b = 8.72 \text{ units}}$$

$$B = 180 - (42 + 37)$$

$$\boxed{B = 61^\circ}$$



$$F = 180 - (50 + 46)$$

$$F = 84^\circ$$

$$\frac{14.5}{\sin 84^\circ} = \frac{d}{\sin 50^\circ}$$

$$14.5 \sin 50^\circ = d \sin 84^\circ$$

$$d = 11.17 \text{ units}$$

$$\frac{14.5}{\sin 84^\circ} = \frac{e}{\sin 46^\circ}$$

$$14.5 \sin 46^\circ = e \sin 84^\circ$$

$$e = 10.49 \text{ units}$$

### Activity B

1.  $10 > 5 \rightarrow$  one triangle

~~Acute~~ Acute angle

$$\rightarrow \frac{10}{\sin 10^\circ} = \frac{5}{\sin B}$$

$$\rightarrow \frac{10 \sin B}{10} = \frac{5 \sin 10^\circ}{10}$$

$$\rightarrow \sin B = \frac{5 \sin 10^\circ}{10}$$

$$\rightarrow B = \sin^{-1} \left( \frac{5 \sin 10^\circ}{10} \right)$$

$$\rightarrow B = 4.98^\circ$$

$$\rightarrow C = 180 - (10 + 4.98)$$

$$C = 165.02^\circ$$

$$\frac{10}{\sin 10^\circ} = \frac{c}{\sin 165.02^\circ}$$

$$10 \sin 165.02^\circ = c \sin 10^\circ$$

$$c = 14.89 \text{ units}$$

2.  $29 < 33 \rightarrow$  no triangle  
obtuse angle



$$3. 20 < 28$$

$$20 < 28 \sin 30$$

$20 > 14 \rightarrow$  two triangles

Acute angle

First triangle:

$$\frac{20}{\sin 30^\circ} = \frac{28}{\sin C}$$

$$\rightarrow \frac{20 \sin C}{20} = \frac{28 \sin 30^\circ}{20}$$

$$\rightarrow \sin C = \frac{28 \sin 30^\circ}{20}$$

$$\rightarrow C = \sin^{-1} \left( \frac{28 \sin 30^\circ}{20} \right)$$

$$\rightarrow \boxed{C = 44.43^\circ}$$

$$B = 180 - (30 + 44.43^\circ)$$

$$\boxed{B = 105.57^\circ}$$

second triangle:

$$C = 180 - 44.43^\circ$$

$$\boxed{C = 135.57^\circ}$$

$$B = 180 - (135.57^\circ + 30^\circ)$$

$$\boxed{B = 14.43^\circ}$$

$$\frac{28}{\sin 135.57} = \frac{b}{\sin 14.43^\circ}$$

$$\frac{28 \sin 14.43^\circ}{\sin 135.57} = \frac{b \sin 135.57^\circ}{\sin 135.57}$$

$$\boxed{b = 9.97 \text{ units}}$$

$$\frac{20}{\sin 30^\circ} = \frac{b}{\sin 105.57^\circ}$$

$$\frac{20 \sin 105.57^\circ}{\sin 30^\circ} = \frac{b \sin 30^\circ}{\sin 30^\circ}$$

$$\boxed{b = 38.57 \text{ units}}$$

