Solve that Triangle!!!!!
Use the procedures we learned in class to solve the following triangles and find the Area. Good Luck! ©


Area:

$$
\begin{aligned}
& e a: \\
& A=\frac{1}{2}(4)(5) \sin 66^{2} 20
\end{aligned}
$$

$a=4, b=5$ and

$$
\begin{aligned}
\angle C & =61^{\circ} 20^{\prime} \\
c^{2} & =4^{2}+5^{2}-2(4)(5) \cos 61^{\circ} 20^{\prime} \\
c & =4.67
\end{aligned}
$$



$$
\frac{\sin \angle A}{4}=\frac{\sin 61^{\circ} 20^{\circ}}{4.67}
$$

$4.67 \sin \angle A=4 \sin 61^{\circ} 20^{\circ}$

$$
\sin \angle A=\frac{4 \sin 61^{\circ} 20^{\prime}}{4.67}
$$



$$
\angle A=\sin ^{-1}(.7515)
$$

$$
\begin{aligned}
& \angle A=\sin ^{-1}(.7515) \\
& \angle A=48.72^{\circ}{ }^{\circ} \angle B=180-48.72-61^{\circ} 20^{\prime} \\
& \angle B=69.95^{\circ}
\end{aligned}
$$

2. $\triangle A B C \quad a=6 \quad b=15 \quad c=11$.
$\angle B=69.95^{\circ}$


SSS-Cosines

$$
\begin{aligned}
6^{2} & =15^{2}+11^{2}-2(15)(11) \cos \angle A \\
.9394 & =\cos \angle A \\
\angle A & =20.05^{\circ}
\end{aligned}
$$

$$
11^{2}=6^{2}+15^{2}-2(6)(15) \cos <c
$$

$$
.1778=\cos \angle C
$$

$$
\angle C=38.94^{\circ} \quad \angle B=121.01^{\circ}
$$

$$
\begin{aligned}
\text { Area } & =\sqrt{s(s-a)(s-b)(s-c)} \\
A & =\sqrt{16(10)(1)(5)} \\
A & =\sqrt{800}=28.28
\end{aligned}
$$

$$
s=\frac{15+11+6}{2}=16
$$

$$
\begin{aligned}
& \text { 3. } \triangle A B C \quad C=60 \quad \angle A=143^{\circ} \quad \angle B=8^{\circ} \\
& 60 \text { A ASA } \angle C=29^{\circ} \\
& \text { B a } 29 \text { Cones } \\
& \frac{\sin 8}{b}=\frac{\sin 29}{60} \quad \frac{\sin 143}{a}=\frac{\sin 29}{60} \\
& \text { Area }=\frac{1}{2}(60)(74.48) \sin 8^{\circ} \\
& =310.97 \\
& b=\frac{60 \sin 8}{\sin 29} \\
& a=\frac{60 \sin 143}{\sin 29} \\
& b=17.22 \quad a=74.48
\end{aligned}
$$


$a=6 \quad b=9 \quad \angle A=34^{\circ}$
SSA-Cosines ambiguous
cause ambiguous
cause

$$
\begin{aligned}
& 6^{2}=c^{2}+9^{2}-2(9)(c) \cos 34^{\circ} \\
& 0=c^{2}-18 \cos 34 c+45 \\
& c=10.73<4.19
\end{aligned}
$$

2 Traingles

4. $\triangle A B C \quad a=6 \quad b=9 \quad \angle A=34^{\circ}$
sTring
$\angle B$ is smaller than LC

$$
\begin{aligned}
& \frac{\sin 34}{6}=\frac{\sin B}{9} \\
& \sin \angle B=\frac{9 \sin 34}{6} \\
& \angle B=57.01^{\circ} \\
& \angle C=88.99^{\circ}
\end{aligned}
$$

$$
\begin{aligned}
\text { Area } & =\frac{1}{2}(9)(10.73) \sin 34 \\
& =27.00
\end{aligned}
$$

$\angle C$ is smaller than $\angle B$

$$
\begin{aligned}
& B \frac{\sin 34}{6}=\frac{\sin \angle C}{4.19} \\
& \sin \angle C=\frac{4.19 \sin 34}{6} \\
& \angle C=22.99^{\circ} \\
& \angle B=123.01^{\circ} \\
& \text { Area }=\frac{1}{2}(4.19)(9) \sin 34 \\
&=10.54
\end{aligned}
$$

