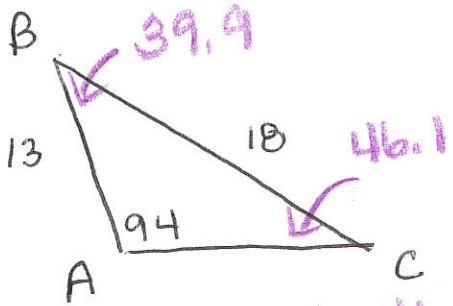
SOLVE each triangle.

1. Given A = 94 degrees, a = 18 and c = 13



$\frac{\sin C}{13} = \frac{\sin 94}{18}$

$\sin C = \frac{13 \sin 94}{18} \approx .7205$

$C = 46.1°$

one solution
A is obtuse ✓

or $180 - 46.1 = 133.9$

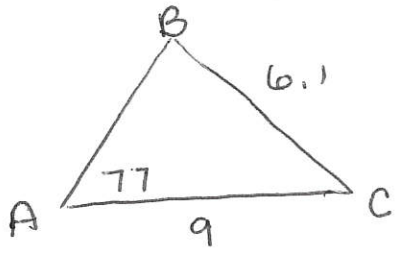
$133.9 + 94$ TOO BIG.

$\Delta B = 180 - 94 - 46.1$

$= 39.9°$

$b \rightarrow \frac{\sin B}{b} = \frac{\sin 94}{18}$ $b = 11.6$

2. A = 77 degrees, a = 6.1, and b = 9



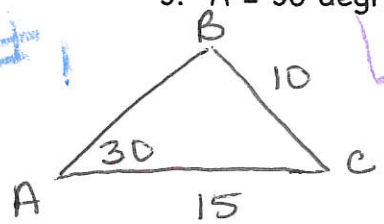
$\sin > 1$

no Δ

$\frac{\sin 77}{6.1} = \frac{\sin B}{9}$

$\sin B = \frac{9 \sin 77}{6.1} = 1.4375$

3. A = 30 degrees, a = 10, b = 15



#1

2 Δs

$\frac{\sin 30}{10} = \frac{\sin B}{15}$

$\sin B = \frac{15 \sin 30}{10}$

$\sin B = .75$

$B = \sin^{-1} .75$

$B = 48.59°$

$\Delta 1$

OR

$C = 180 - 30 - 48.59$

$C = 101.41°$

#2

check

$180 - 48.59 = 131.41$

$+ 30$

$161.41 < 180$ ☺

2 Δs $\Delta 2$

$B = 131.41°$

$C = 180 - 161.41$

$+ 18.59$

$\frac{\sin 18.59}{c} = \frac{\sin 30}{10}$

$c = \frac{10 \sin 18.59}{\sin 30}$

$c = 6.38$

$\frac{\sin 101.41}{c} = \frac{\sin 30}{10}$

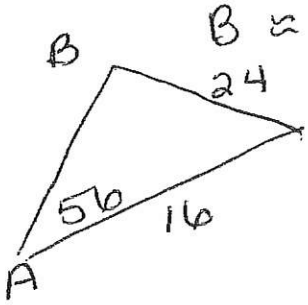
$c = \frac{10 \sin 101.41}{\sin 30}$ 19.6

4. A = 56 degrees, a = 24, b = 16

5. B = 122 degrees, b = 5, a = 8

6. A = 17 degrees, a = 5.8, b = 14.7

4. A = 56 degrees, a = 24, b = 16



$B \approx 33.6^\circ$ $C \approx 90.4^\circ$ $c = 28.9$

$\frac{\sin 56}{24} = \frac{\sin B}{16}$

$\sin B = \frac{16 \sin 56}{24}$

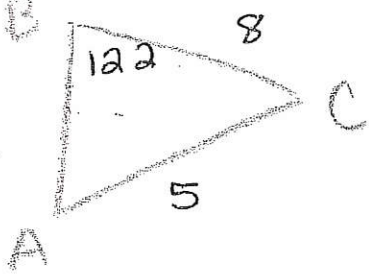
$\sin B = .5527$

$\sin^{-1} .5527 \approx 33.6^\circ$

Check:
$180 - 33.6 = 146.4$
$+ 56$
TOO BIG!
one Δ

5. B = 122 degrees, b = 5, a = 8

no solution



$\frac{\sin 122}{5} = \frac{\sin A}{8}$

$\sin A = \frac{8 \sin 122}{5}$

$\sin A = 1.36$

$\sin \theta \geq 1$
→ no sol.

6. A = 17 degrees, a = 5.8, b = 14.7

2 Δs

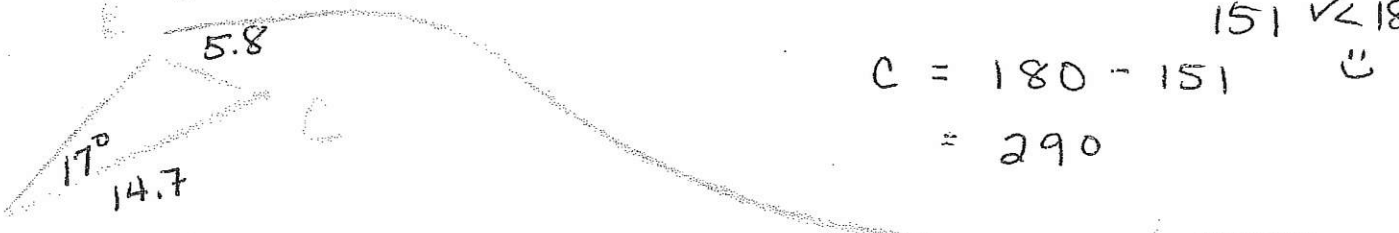
$B = 46^\circ$ OR $B = 180 - 46 = 134$

$+ 17$

$151 < 180$ ☺

$C = 180 - 151$

$= 29^\circ$



$\frac{\sin 17}{6.8} = \frac{\sin B}{14.7}$

$\frac{14.7 \sin 17}{6.8} = \sin B$

$\sin B = .7410$

$\sin^{-1} .7410 = 47.8^\circ = B_1$

$C = 180 - 47.8 - 17 = 115.2^\circ = C_1$

Check:
$180 - 47.8 = 132.2^\circ = B_2$
$+ 17$
149.2
2 Δs!

$C_2 = 180 - 149.2$

$C_2 = 30.8$