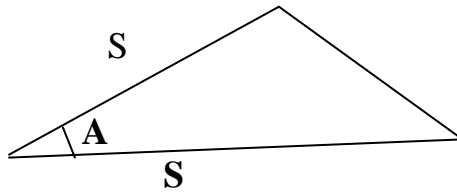


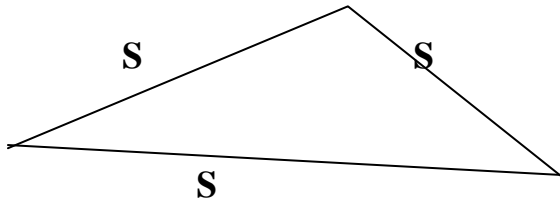
7.3: The Law of Cosines

Case III)



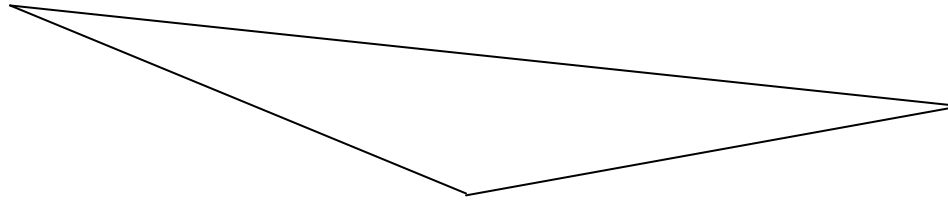
SAS

Case IV)



SSS

Theorem:



1)

2)

3)

Ex:

1) Find c , if $a=6$, $b=4$, $\gamma = 60^\circ$.

2) Find α , if $a=4$, $b=3$, $c=6$.

3) Find a , if $b=15$, $c=10\sqrt{2}$, $\alpha = \frac{\pi}{4}$.

4) Find γ , if $a=4$, $b=6$, $c = \sqrt{76}$.

5) Find b , if $a=2$, $c=1$, $\beta = 10^\circ$

EX:

- 1- A fire at C is spotted from two fire lookout stations, A and B. If the distance between A and C is 50 ft, and the distance between B and C is 70 ft. Find the distance between the two stations, if the angle ACB is 70° .
- 2- A ship leaves port at 1:00 pm and travels $S 35^\circ E$ at the rate of 24 mph. Another ship leaves the same port at 1:30 pm and travels $S 20^\circ W$ at 18 mph. Approximately how far apart are the ships at 3:00 pm ?
- 3- A vertical pole 40 feet tall stands on hillside that makes an angle 17° with the horizontal. Approximate the minimal length of cable that will reach from the top of the pole to a point on the hill, 72 feet downhill from the base of the pole