1. Use the figure below to find the missing sides, $a$, $b$, and $c$ and angles $A$, $B$, and $C$ (if possible). If there are two solutions, find both.

(a) $a = 20$, $b = 28$, $c = 41$
(b) $a = 20$, $B = 81^\circ$, $c = 28$
(c) $A = 105^\circ$, $B = 9^\circ$, $c = 15$
(d) $B = 17^\circ$, $b = 5$, $c = 8$

2. Two planes leave Bush International Airport in Houston at 11 am. The air traffic controller reports that they are traveling away from each other at an angle of $103^\circ$. The Boeing 737 travels at 509 mph and the MD-80 travels at 503 mph. How far apart are they at 11:30 am?

3. Two fire lookouts are located 56.7 miles apart, at points $A$ and $B$. There is a forest fire at point $C$. If $\angle CAB = 54^\circ$ and $\angle CBA = 58^\circ$, which fire lookout is closer? How much closer?