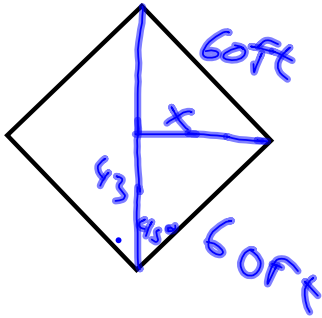


6-2 Day 2

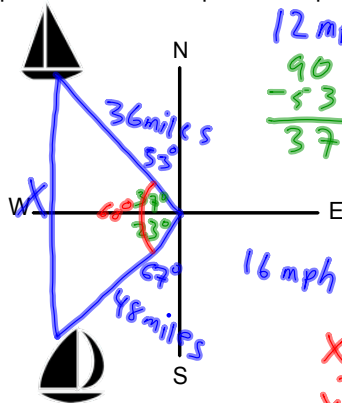
I. Applications

Ex 1) A pitcher's mound on a women's softball field is 43 feet from home plate and the distance between the bases is 60 feet. The pitcher's mound is NOT half way between home and second base. How far is the pitcher's mound from 1st base?



$$\begin{aligned}
 X^2 &= 43^2 + 60^2 - 2(43)(60)\cos 45^\circ \\
 X^2 &= 5449 - 5160 \cos 45^\circ \\
 X^2 &= \sqrt{1800.329009} \\
 X &\approx 42.43 \text{ Ft}
 \end{aligned}$$

Ex 2) Two ships leave a port at 9 am. One travels at a bearing of N 53°W at 12 miles per hour, and the other travels at a bearing of S 67°W at 16 miles per hour. Approximate how far apart the ships are at noon that day.



move the ships to the correct location

$$\begin{aligned}
 &12 \text{ mph} \times 3 \text{ hrs} = 36 \text{ miles} \\
 &\begin{array}{r} 90 \\ -53 \\ \hline 37 \end{array} \quad \begin{array}{r} 90 \\ -67 \\ \hline 23 \end{array} \quad \begin{array}{r} 37 \\ +23 \\ \hline 60^\circ \end{array} \\
 &16 \text{ mph} \times 3 \text{ hrs} = 48 \text{ miles} \\
 &X^2 = 36^2 + 48^2 - 2(36)(48)\cos 60^\circ \\
 &X^2 = 3600 - 3456 \cos 60^\circ \\
 &X^2 = \sqrt{1872} \\
 &X \approx 43.27 \text{ miles}
 \end{aligned}$$