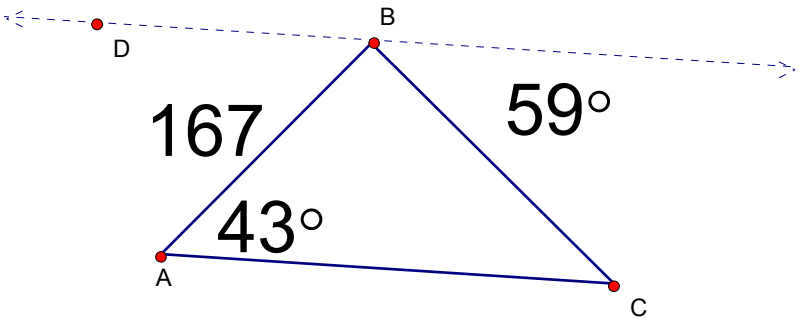
Homework 9 Math 48C Mitchell Schoenbrun
9.3 P. 645 #1-4, 15-18, 21-24

1. a=6, B=77°, C=14° A=180°-77°-14°=89° $b = \frac{6}{\sin 89^\circ} \times \sin 77^\circ \approx 5.85$ $c = \frac{6}{\sin 89^\circ} \times \sin 14^\circ \approx 1.45$	2. a=8, B=19°, C=75° A=180°-19°-75°=86° $b = \frac{8}{\sin 86^\circ} \times \sin 19^\circ \approx 2.61$ $c = \frac{8}{\sin 86^\circ} \times \sin 75^\circ \approx 7.75$
3. 1. a=15, B=98°, C=15° A=180°-98°-15°=67° $b = \frac{15}{\sin 67^\circ} \times \sin 98^\circ \approx 16.14$ $c = \frac{15}{\sin 67^\circ} \times \sin 15^\circ \approx 4.22$	4. a=4, B=48°, C=114° A=180°-48°-114°=18° $b = \frac{4}{\sin 18^\circ} \times \sin 48^\circ \approx 9.62$ $c = \frac{4}{\sin 18^\circ} \times \sin 114^\circ \approx 11.83$
15. A=28°, B=67°, b=23 C=180°-28°-67°=85° $a = \frac{23}{\sin 67^\circ} \times \sin 28^\circ \approx 11.73$ $c = \frac{23}{\sin 67^\circ} \times \sin 85^\circ \approx 24.89$	16. A=4°, B=111°, b=19 C=180°-4°-111°=65° $a = \frac{19}{\sin 111^\circ} \times \sin 4^\circ \approx 1.42$ $c = \frac{19}{\sin 111^\circ} \times \sin 65^\circ \approx 18.44$
17. a=34, A=80°, b=12 Requires law of cosines	18. a=26, A=140°, b=43 Requires law of cosines
21.Requires law of cosines	

22.



a.

Construct $\overleftrightarrow{DB}$ parallel to $\overleftrightarrow{AC}$.

$\angle ABD = 43^\circ$, by interior angles.

$\angle BCA = 59^\circ$, by interior angles.

$$BC = \frac{167}{\sin 59^\circ} \times \sin 43^\circ \approx 132.9$$

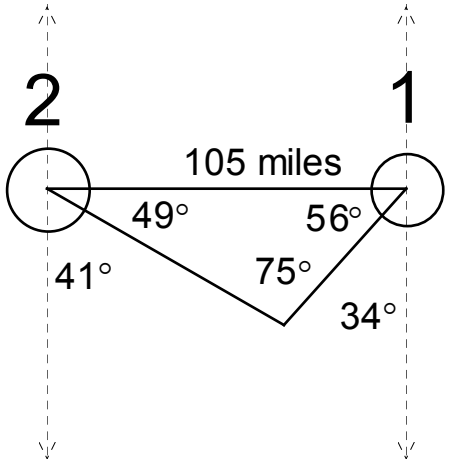
b.

$\angle ABC = 180^\circ - 43^\circ - 59^\circ = 78^\circ$

$$AC = \frac{167}{\sin 59^\circ} \times \sin 78^\circ \approx 190.6$$

$167 + 132.9 - 190.6 = 109.3$ extra miles

23.

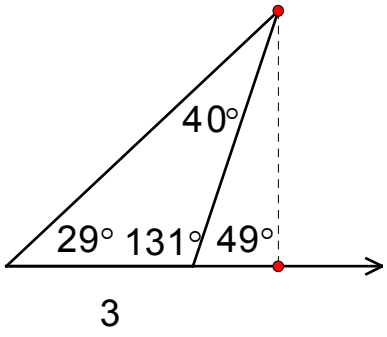


a. $$D1 = \frac{105}{\sin 75^\circ} \times \sin 41^\circ \approx 71.3$$

$$D2 = \frac{105}{\sin 75^\circ} \times \sin 56^\circ \approx 90.1$$

b. $$\frac{71.3}{175 mph} \approx .407 hr = 24 \min$$

24.



a. $$D = \frac{3}{\sin 40^\circ} \times \sin 131^\circ \approx 3.52$$

b. $H = 3.52 \cos\left(90^\circ - 29^\circ\right) \approx 1.70$