

⑦ $C = 77^\circ$
 $a \approx 4.1$
 $c \approx 7.3$

⑰ one

⑱ no Δ

⑲ no Δ

⑳ $A = 99^\circ$
 $a \approx 28.3$
 $b \approx 19.1$

㉓ $A \approx 24.6^\circ$ $A \approx 5.4^\circ$
 $B \approx 80.4^\circ$ $B \approx 99.6^\circ$
 $a \approx 20.7$ $a \approx 4.7$

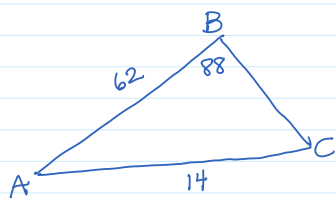
㉕ SAS \Rightarrow no Law of Sines

㉖ .72 Miles

㉗ $\approx 108.9 \text{ ft}$

SOLUTIONS

⑱



SSA \rightarrow ambiguous case!!

angle C

$$\frac{\sin C}{62} = \frac{\sin 88}{14}$$

$$\sin C = \frac{62 \sin 88}{14}$$

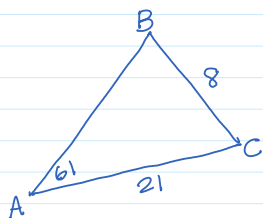
$$\sin C = 4.43$$

$$C = \sin^{-1}(4.43)$$

does not exist!!

no triangle!

㉗



SSA \rightarrow ambiguous case!

angle B

$$\frac{\sin B}{21} = \frac{\sin 61}{8}$$

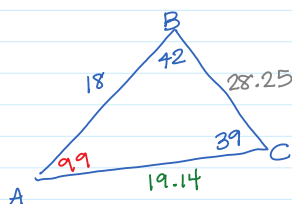
$$\sin B = \frac{21 \sin 61}{8}$$

$$\sin B = 2.30$$

does not exist

No triangle!

㉙



AAS \rightarrow one triangle!

angle A

$$A = 180 - (42 + 39)$$

$$A = 99^\circ$$

side B

$$\frac{\sin 42}{b} = \frac{\sin 99}{18}$$

$$b = \frac{18 \sin 42}{\sin 99}$$

$$b = 19.14$$

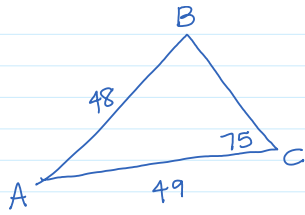
side A

$$\frac{\sin 99}{a} = \frac{\sin 39}{18}$$

$$a = \frac{18 \sin 99}{\sin 39}$$

$$a = 28.25$$

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SSA → ambiguous case!

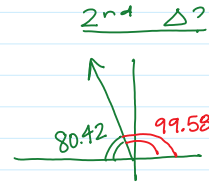
angle B

$$\frac{\sin B}{49} = \frac{\sin 75}{48}$$

$$\sin B = \frac{49 \sin 75}{48}$$

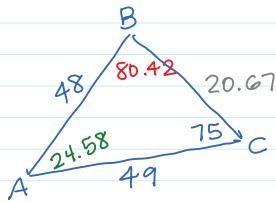
$$\sin B = .99$$

$B = 80.42^\circ$ * reference angle in Quadrant I or II
 ↓
 at least 1 Δ ...



$99.58 + 75 < 180$
 ↓
 2 Δ's!!

TRIANGLE 1 (angle B is acute)



$$B = 80.42^\circ$$

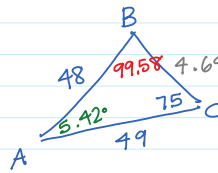
$$A = 180 - (75 + 80.42)$$

$$A = 24.58^\circ$$

$$\frac{\sin 24.58}{a} = \frac{\sin 75}{48}$$

$$a = 20.67$$

TRIANGLE 2 (angle B is obtuse)



$$B = 99.58^\circ$$

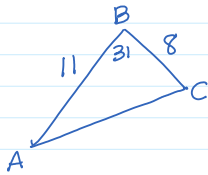
$$A = 180 - (75 + 99.58)$$

$$A = 5.42^\circ$$

$$\frac{\sin 5.42}{a} = \frac{\sin 75}{48}$$

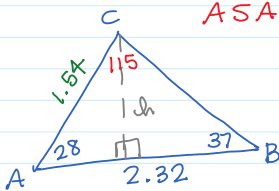
$$a = 4.69$$

35



SAS → can't use Law of Sines
(no possible pairs)

40



ASA → one Δ

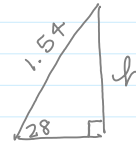
angle C

$$C = 180 - (28 + 37)$$

$$C = 115^\circ$$

$$\frac{\sin 37}{b} = \frac{\sin 115}{1.54}$$

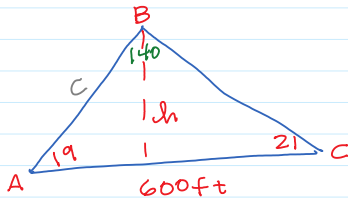
$$b = 1.54$$



$$\sin 28 = \frac{h}{1.54}$$

$$h = 72 \text{ mi}$$

43



angle B

$$B = 180 - (19 + 21)$$

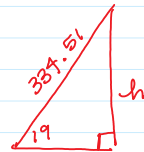
$$B = 140$$

Side c

$$\frac{\sin 21}{c} = \frac{\sin 140}{600}$$

$$c = \frac{600 \sin 21}{\sin 140}$$

$$c = 334.51$$



$$\sin 19 = \frac{h}{334.51}$$

$$h = 108.91 \text{ ft}$$