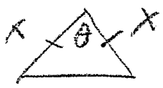
Law of Sines thr KEY

① ≈ 5.2

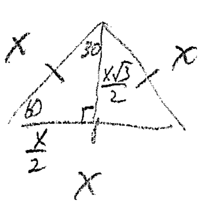
⑤ ≈ 18.8

⑥ $= 16$

⑦ 

$A = \frac{1}{2} x \cdot x \sin\theta$

$= \boxed{\frac{x^2}{2}\sin\theta}$

⑧ 

$\boxed{A = \frac{x^2\sqrt{3}}{4}}$

$\frac{1}{2} \cdot \frac{x}{2} \cdot \frac{x\sqrt{3}}{2} = \frac{x^2\sqrt{3}}{8} \cdot 2 = \frac{x^2\sqrt{3}}{4}$

⑨ $m\angle A = 50°$

$a = 10$

$b \approx 12.9$

⑪ $m\angle B = 35°$

$b \approx 10.5$

$c \approx 4.7$

⑬ $m\angle C = 10°$

$a \approx 51.8$

$b \approx 35.5$

⑮ $h \approx 7.4$ m

No Δs possible since $a < h$.

⑯ $\angle A$ is obtuse, $a > b$ } one Δ possible

$m\angle B \approx 16.8°$

$m\angle C = 43.2°$

$c \approx 9.5$ m

⑰ $h \approx 5.7$

Since $h < a < b$, there are 2 Δs.

Δ_1	Δ_2
$m\angle B \approx 39.6°$	$m\angle B = 140.4°$
$m\angle C \approx 105.4°$	$m\angle C = 4.6°$
$c \approx 15.1$ m	$c \approx 1.3$ m

⑱ Since $\angle A$ is acute and $a > b$, there is one Δ.

$m\angle B \approx 30.3°$

$m\angle C = 104.7°$

$c \approx 9.6$ m

(19) $m\angle C = 23.5°$

$a \approx 121.7$ miles

$b \approx 123.7$ miles

One possible answer:

Find area using $\frac{1}{2}bc\sin(A)$

Then use area and solve for h.

or

$\frac{1}{2}bc\sin(A) = \frac{1}{2}ch$

$b\sin(A) = h$

$h = 123.7\sin(76)$

$h \approx 120$ miles.

(20) $a \approx 0.36$ m

Since $h < a < b$, another Δ is possible.

(21) $c \approx 5.2$ miles

(22) A. $c\sin(A)$

B. $b\sin(C)$

C. $a\sin(B)$

(26) $m\angle C = 97°$

$b \approx 8$ miles

Area = 20 sq. miles

h = 4 miles