(1) No solution. Since A is obtuse and $a < b$

(2) 2 solutions. $a < b$ but $a >$ height $(48 \sin 41 = 31.5)$

Triangle #1		Triangle #2	
$\angle A = 41^\circ$	$a = 34$ ft	$\angle A = 41^\circ$	$a = 34$ ft.
$\angle B_1 = 68^\circ$	$b = 48$ ft	$\angle B_2 = 112^\circ$	$b = 49$ ft.
$\angle C_1 = 71^\circ$	$c_1 = 49$ ft	$\angle C_2 = 27^\circ$	$c_2 = 23.5$ ft.

(3) 1 solution. b (opp. side) > c (other side)

$\angle A = 62.7^\circ$	$a = 6.8$ in
$\angle B = 27^\circ$	$b = 3.49$ in.
$\angle C = 90.3$	$c = 7.7$ in.

(4) 1 solution. SAA

$\angle A = 45.5^\circ$	$a = 338$ ft.
$\angle C = 110.5^\circ$	$c = 443.9$ ft
$\angle B = 24^\circ$	$b = 192.7$ ft.

(5) 1 solution. SAS

$\angle A = 122.7^\circ$	$a = 122.4$ Km
$\angle B = 26^\circ$	$b = 63.6$ Km
$\angle C = 31.3^\circ$	$c = 75.7$ Km

(6) 1 solution. SAA

$\angle B = 15.4^\circ$ $b = 125.5$ cm
$\angle C = 24.8^\circ$ $c = 198.2$ cm
$\angle A = 139.8^\circ$ $a = 305$ cm

(7) 1 solution. SSS

$\angle B = 88^\circ$ $b = 73$ yd
$\angle C = 53^\circ$ $c = 58$ yd
$\angle A = 39^\circ$ $a = 46$ yd

(8) 144.7 ft^2

(9) 14.4 m^2

(10) 12.9 in^2

(11) Heron's formula
9.5 cm^2

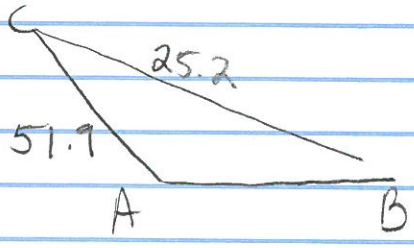
(12) 53852.5 m^2

(13) 11.5 cm^2

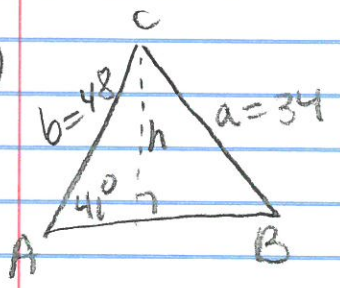
(14) 356.9 ft^2

Review #2

① $a < b$ and $\angle A$ is obtuse No solution



②



$a < b$, check height
$h = 48 \sin 41 = 31.5$
$a >$ height
2 solutions

#1 solution

$$\frac{\sin 41}{34} = \frac{\sin B}{48}$$

$\angle B_1 = 68°$
$\angle C_2 = 71°$

$$\frac{\sin 41}{34} = \frac{\sin 71}{c_1}$$

$c_1 = 49$ ft.

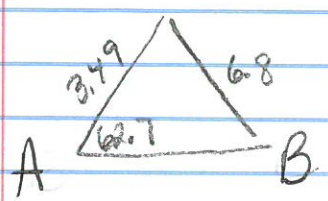
#2 solution

$\angle B_2 = 180 - 68 = 112°$
$\angle C_2 = 27°$

$$\frac{\sin 41}{34} = \frac{\sin 112}{c_2}$$

$c_2 = 48.1$ ft

③ a (opp. side) $> b$ (other side) 1 solution



$\angle C = 90.3$

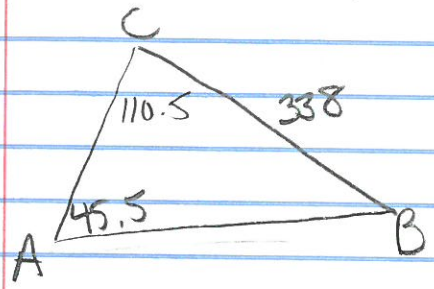
$$\frac{\sin 62.7}{6.8} = \frac{\sin B}{3.49}$$

$\angle B = 27°$

$$\frac{\sin 62.7}{6.8} = \frac{\sin 90.3}{c}$$

$c = 7.7$ in.

(4.) 1 solution (not ambiguous)

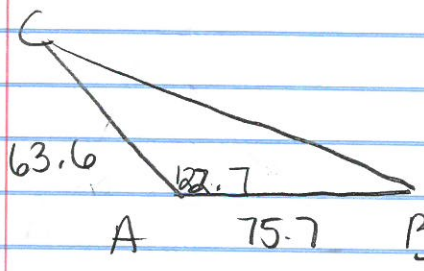


$\angle B = 24°$

$$\frac{\sin 45.5}{338} = \frac{\sin 110.5}{c} \qquad \frac{\sin 45.5}{338} = \frac{\sin 24}{b}$$

$c = 443.9$ ft. $\qquad b = 192.7$ ft

(5) 1 solution (not ambiguous)



$a^2 = 63.6^2 + 75.7^2 - 2(63.6)(75.7)\cos 122.7$

$a^2 = 14977.4$

$a = 122.4$ Km

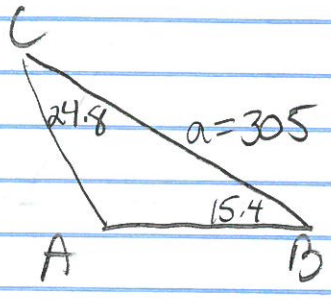
Find the smallest angle next or use law of cosines again.

$$\frac{\sin 122.7}{122.4} = \frac{\sin B}{63.6}$$

$\angle B = 26°$

$\angle C = 31.3°$

(6) 1 solution (not ambiguous)

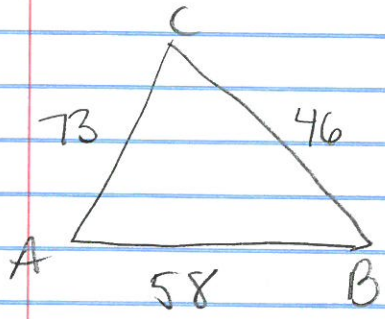


$\angle A = 139.8^\circ$

$$\frac{\sin 139.8}{305} = \frac{\sin 15.4}{b} \qquad \frac{\sin 139.8}{305} = \frac{\sin 24.8}{c}$$

$b = 125.5\text{ cm}$ $\qquad$ $c = 198.2\text{ cm}$

(7) 1 solution (not ambiguous)



Find largest angle first

$$73^2 = 46^2 + 58^2 - 2(46)(58)\cos B$$
$$5329 = 5480 - 5336\cos B$$
$$-151 = -5336\cos B$$
$$.028298 = \cos B$$
$$\angle B = 88^\circ$$

$$\frac{\sin 88^\circ}{73} = \frac{\sin A}{46}$$

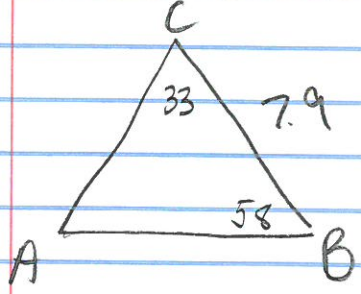
$\angle A = 39^\circ$

$\angle C = 53^\circ$

(8) $A = \frac{1}{2}(15)(23)\sin 57$

$A = 144.7 \text{ ft}^2$

(9) Find side b or c first



$\angle A = 89°$

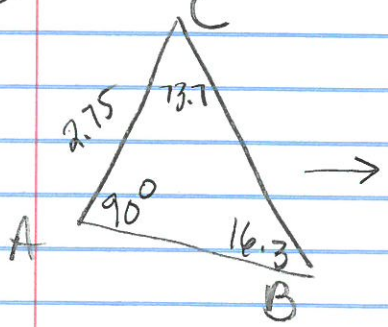
$\frac{\sin 89}{7.9} = \frac{\sin 33}{c}$

$c = 4.3$

$A = \frac{1}{2}(4.3)(7.9)\sin 58$

$A = 14.4 \text{ m}^2$

(10) Find side a or c first



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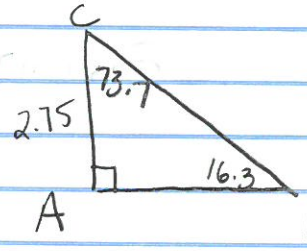


since rt. A, I found c first

$\frac{\sin 16.3}{2.75} = \frac{\sin 73.7}{c}$

$c = 9.4$

Don't need special formula

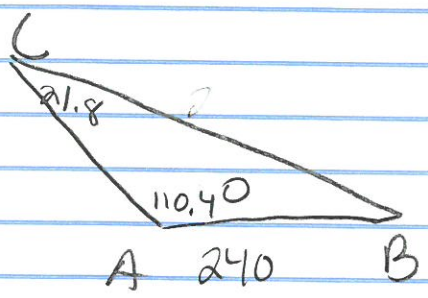
$A = \frac{1}{2}(\text{base})(\text{height}) = \frac{1}{2}(9.4)(2.75) = 12.9 \text{ in}^2$

(11) Use Heron's Formula

$s = \frac{8.35 + 6.29 + 3.36}{2} = 9$

$A = \sqrt{9(9-8.35)(9-6.29)(9-3.36)} = 9.5 \text{ cm}^2$

(12) Find side a or b first



$\angle B = 47.8°$

$$\frac{\sin 21.8}{240} = \frac{\sin 47.8}{b}$$

$b = 478.8\ m$

$$A = \frac{1}{2}(240)(478.8)\sin 110.4$$

$A = 53852.5\ m^2$

(13) $A = \frac{1}{2}(5)(8)\sin 35$

$A = 11.5\ cm^2$

(14) Heron's Formula

$$s = \frac{63 + 37 + 30}{2} = 65$$

$$A = \sqrt{65(65-63)(65-37)(65-30)} = 356.9\ ft^2$$