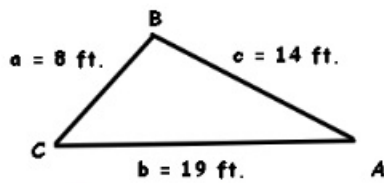


Find the solution(s) for the triangle with the given pieces:



A	B	C	A	B	C
22.1°	116.8°	41.1°			
a	b	c	a	b	c
8	19	14			

$$C = 180^\circ - 22.1^\circ - 116.8^\circ$$

$$C = 41.1^\circ$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$361 = 64 + 196 - 2(8)(14) \cos B$$

$$\frac{361 - 64 - 196}{-16(14)} = \cos B$$

$$\cos B = \frac{101}{-224}$$

$$B = \cos^{-1}\left(\frac{101}{-224}\right)$$

$$B = 116.8^\circ$$

$$\frac{8}{\sin A} = \frac{19}{\sin 116.8^\circ}$$

$$A = \sin^{-1}\left(\frac{8 \sin 116.8^\circ}{19}\right)$$

$$A = 22.1^\circ$$

(b) Area

19, 8, 14

$$S = \frac{a+b+c}{2}$$

$$S = \frac{19+8+14}{2}$$

$$S = \frac{41}{2} = 20.5$$

$$\sqrt{s(s-a)(s-b)(s-c)}$$

$$\sqrt{20.5(20.5-8)(20.5-19)(20.5-14)}$$

$$\sqrt{20.5(12.5)(1.5)(6.5)}$$

$$\text{area} = 49.98 \text{ ft}^2$$

Ex Find the area to the nearest whole number.

$$A = 42^\circ \quad b = 3 \quad c = 10$$

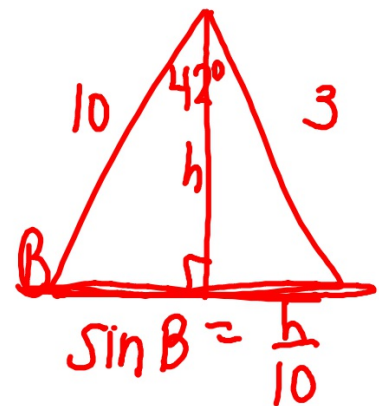
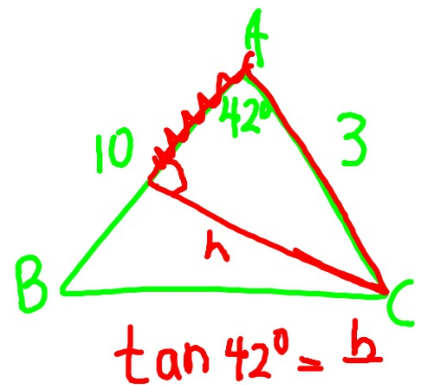
$$\text{area } \Delta = \frac{1}{2}bc \sin A$$

$$= \frac{1}{2}(3)(10) \sin 42^\circ$$

$$= 15 \sin 42^\circ$$

$$= 10.04 \text{ u}^2$$

$$10 \text{ u}^2$$



$$A.K = \frac{a \cdot b \cdot \sin C}{2}$$

Ex Find the area to the nearest tenth. $a=8$ $b=6$ $c=12$

$$s = \frac{8+6+12}{2}$$

$$s = 13$$

$$21.33$$

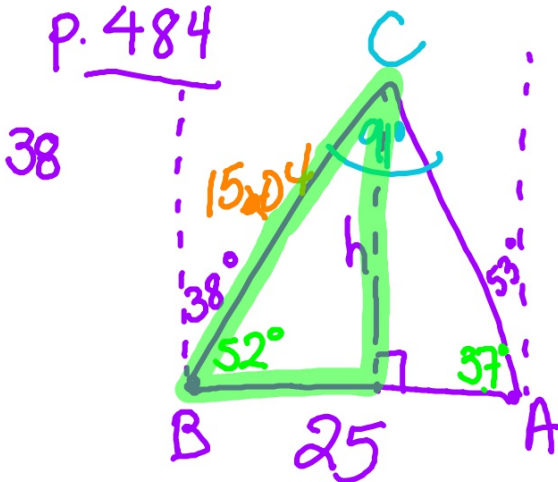
$$\textcircled{21.3 \text{ u}^2}$$

$$\sqrt{13(13-8)(13-6)(13-12)}$$

$$\sqrt{13 \cdot 5 \cdot 7 \cdot 1}$$

$$\sqrt{455}$$

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$$C = 180^\circ - 37^\circ - 52^\circ$$

$$C = 91^\circ$$

$$\frac{x}{\sin 37^\circ} = \frac{25}{\sin 91^\circ}$$

$$x = \frac{25 \sin 37^\circ}{\sin 91^\circ}$$

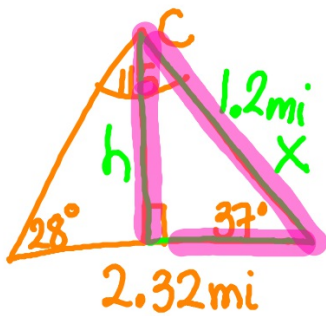
$$x = 15.04 \text{ mi}$$

$$\sin 52^\circ = \frac{h}{15.04}$$

$$h = 15.04 \sin 52^\circ$$

$$h = 11.9 \text{ mi}$$

40.



$$C = 180^\circ - 28^\circ - 37^\circ$$

$$C = 115^\circ$$

$$\sin 37^\circ = \frac{h}{1.2}$$

$$h = 1.2 \sin 37^\circ$$

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

$$\frac{2.32}{\sin 115^\circ} = \frac{X}{\sin 28^\circ}$$

$$X = \frac{2.32 \sin 28^\circ}{\sin 115^\circ}$$

$$X = 1.2 \text{ mi}$$

A	B	C	A	B	C
78.2	33.8	68	101.8		68
a	b	c	a	b	c
19		18	19		18



13. $A = 36^\circ$ $a = 2$ $b = 7$

$$\frac{2}{\sin 36^\circ} = \frac{7}{\sin B}$$

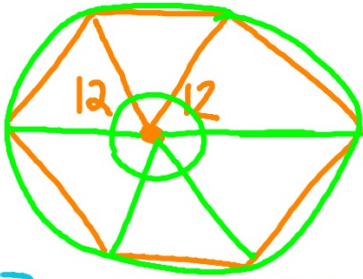
$$\frac{2 \sin B}{2} = \frac{7 \sin 36^\circ}{2}$$

$$\sin B = \frac{7 \sin 36^\circ}{2}$$

$$B = \sin^{-1} \left(\frac{7 \sin 36^\circ}{2} \right)$$

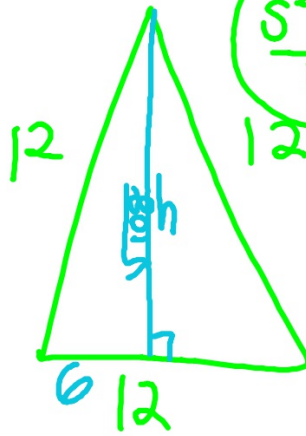
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#31



$$6 \left[\frac{1}{2} (12)(\sqrt{108}) \right]$$

$$A = \frac{1}{2} P a \quad 6 \left(\frac{144\sqrt{3}}{4} \right)$$



$$\frac{s^2 \sqrt{3}}{4}$$

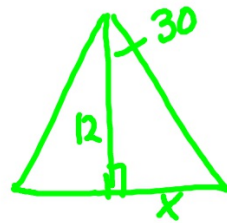
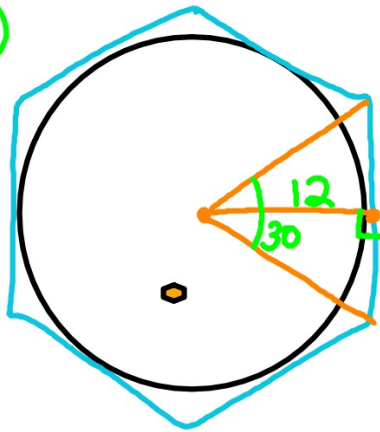
$$h^2 + 6^2 = 12^2$$

$$h^2 + 36 = 144$$

$$h^2 = 108$$

$$h = \sqrt{108}$$

$$\left(\frac{1}{2}bh\right)$$
$$6(x \cdot 12)$$



$$\tan 30^\circ = \frac{x}{12}$$
$$x = 12 \tan 30^\circ$$

1, 5, 4

No Δ

$$1+4 > 5$$

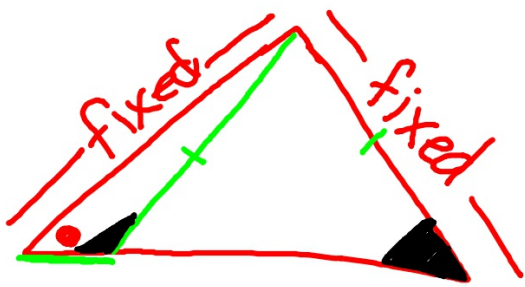
$$5 > 5$$

1. $\arctan \sqrt{3}$ $\frac{x}{x}$ $\frac{y}{x}$ $\frac{\sqrt{3}}{1}$

2. $\sin(\sin^{-1} \frac{1}{2})$ $\frac{1}{2}$ $(\frac{\sqrt{3}}{2}, \frac{1}{2})$

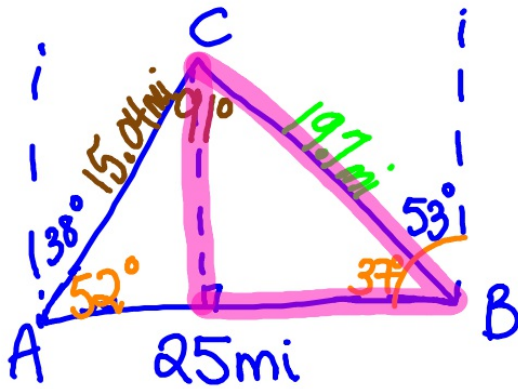
3. $\arctan(\tan \frac{11\pi}{6})$ $(-\frac{\sqrt{3}}{3}, -\frac{1}{2})$

$\arctan(-\frac{1}{\sqrt{3}})$



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(38)



$$\begin{aligned} C &= 180^\circ \\ &- 52^\circ \\ &- 37^\circ \\ \hline &91^\circ \end{aligned}$$

$$\frac{25}{\sin 91^\circ} = \frac{b}{\sin 37^\circ}$$

$$b = \frac{25 \sin 37^\circ}{\sin 91^\circ}$$

$$b = 15.04 \text{ mi}$$

$$\frac{25}{\sin 91^\circ} = \frac{a}{\sin 52^\circ}$$

$$a = \frac{25 \sin 52^\circ}{\sin 91^\circ}$$

$$a = 19.7 \text{ miles}$$

$$\sin 37^\circ = \frac{h}{19.7}$$

$$h = 19.7 \sin 37^\circ$$

$$h = 11.8 \text{ mi}$$

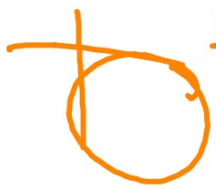
1. $\arcsin\left(\frac{\sqrt{3}}{2}\right) \frac{\pi}{3}$

2. $\tan^{-1}(1) \frac{\pi}{4}$

3. $\sin(\sin^{-1} 0)$

4. $\arctan\left(\tan \frac{5\pi}{3}\right)$

$\arctan(\sqrt{3})$



$\frac{\pi}{3}$

$\frac{\pi}{3}$

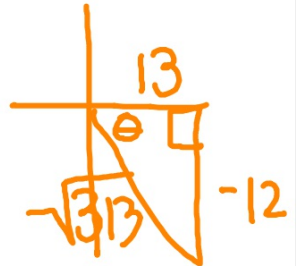
$\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

5. $\sec\left(\tan^{-1}\frac{-12}{13}\right)$

$\frac{\sqrt{313}}{13}$

$\sin(0\pi)$

0



$13^2 + (-12)^2 = h^2$

$169 + 144 = h^2$

$\sqrt{313} = h$