Bellwork Alg 2B Wednesday, May 30, 2018

1. Find the complete solution to this equation. Give EXACT answer when possible, otherwise, round to the the nearest hundredth. Give answer in radians.

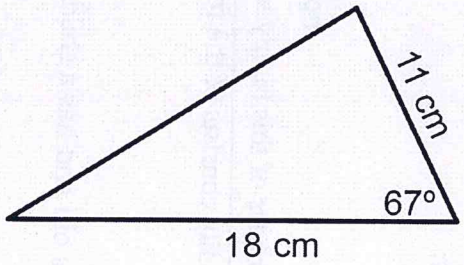
$20\text{Sin}^3 2x + 8\text{Sin}^2 2x - 15\text{Sin}2x - 6 = 0$

2. Find all solutions for x, $0° \leq x \leq 360°$. Give EXACT answer when possible, otherwise, round to the the nearest hundredth.

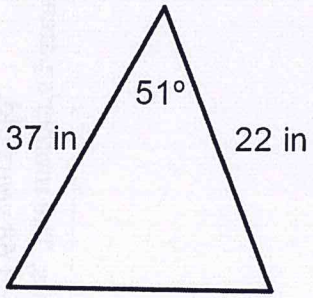
$20\text{Cos}^2 5x + 8\text{Cos}5x = 0$

3. Find the area of each triangle to the nearest hundredth.

a)



b)



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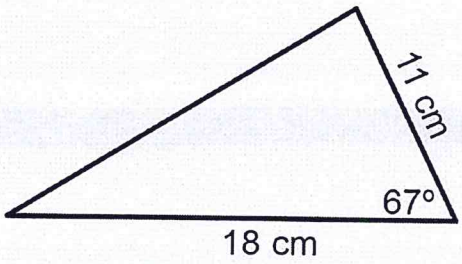
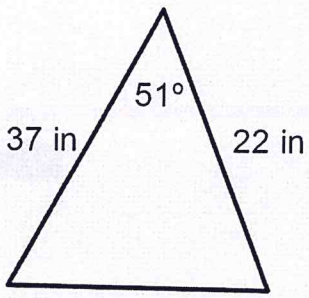


b)



Alg 2B Bellwork WED 5-30-18

ANSWERS

① $20\sin^3 2x + 8\sin^2 2x - 15\sin 2x - 6 = 0$

$20x^3 + 8x^2 - 15x - 6$

	$5x$	$+2$
$4x^2$	$20x^3$	$+8x^2$
-3	$-15x$	-6

$(5x+2)(4x^2-3)=0$

$(5\sin 2x+2)(4\sin^2 2x-3)=0$

period of $\sin 2x \Rightarrow \frac{2\pi}{2} = \pi$

$5\sin 2x + 2 = 0$

$\sin 2x = -2/5$

$2x = \sin^{-1}(-2/5)$

$2x = -.41 \pm \pi - -.41$ $+2\pi$

$\frac{2x}{2} = \frac{5.87}{2} \pm \frac{3.55}{2}$

$x = 2.94 \pm 1.78$ $+\pi n$ $+\pi n$

$4\sin^2 2x - 3 = 0$

$\sqrt{\sin^2 2x} = \sqrt{3/4}$

$\sin 2x = \pm \frac{\sqrt{3}}{2}$

$\frac{2x}{2} = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ $\div 2$

$x = \frac{\pi}{6}, \frac{2\pi}{6}, \frac{4\pi}{6}, \frac{5\pi}{6}$ $+\pi n$ $+\pi n$ $+\pi n$ $+\pi n$

② $20\cos^2 5x + 8\cos 5x = 0$

$4\cos 5x\,(5\cos 5x + 2) = 0$

$4\cos 5x = 0$

$\cos 5x = 0$

$\frac{5x}{5} = \frac{90^\circ}{5} \pm \frac{270^\circ}{5}$

period of $\cos 5x \Rightarrow \frac{360}{5} = 72^\circ$

$x = 18^\circ \pm 54^\circ$

90°	126°
162°	198°
234°	270°
306°	342°

$5\cos 5x + 2 = 0$

$\cos 5x = -2/5$

$5x = \cos^{-1}(-2/5)$

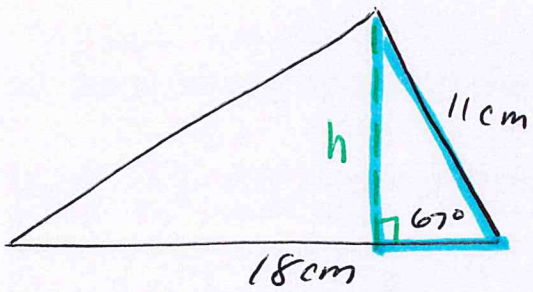
$5x = 113.58 \pm -113.58$ $+360$

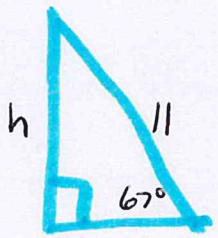
$\frac{5x}{5} = \frac{113.58}{5} \pm \frac{246.42}{5}$

$x = 22.72^\circ \pm 49.28^\circ$

94.72°	121.28°
166.72°	193.28°
238.72°	265.28°
310.72°	337.28°

3 a)





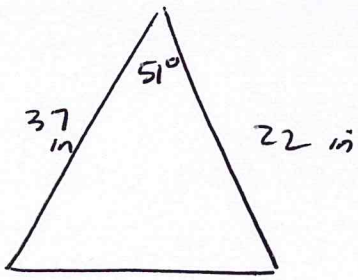
$\sin 67° = \frac{h}{11}$

$h = 10.13$ cm

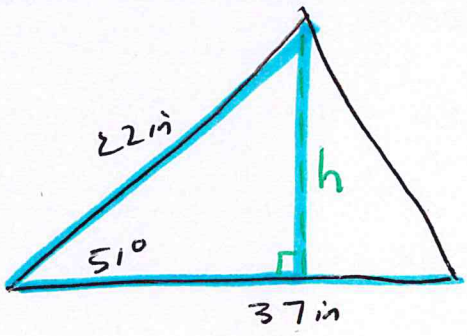
$A = \frac{1}{2}bh = \frac{1}{2}(18)(10.13)$

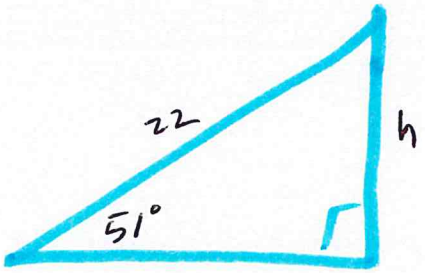
$A = 91.17\ cm^2$

b)



ROTATE Δ →





$\sin 51° = \frac{h}{22}$

$h = 17.10$ in

$A = \frac{1}{2}bh = \frac{1}{2}(37)(17.10)$

$A = 316.35\ in^2$