MAT 142, Quiz #10, Spring 2017   Name _____ KEY _____
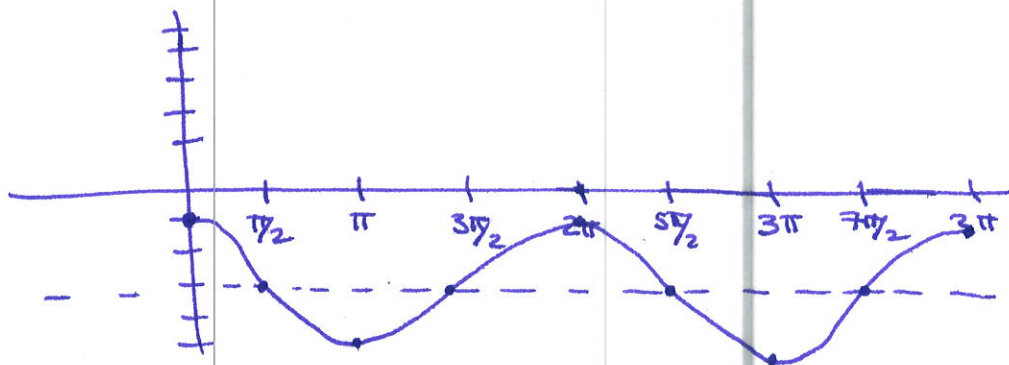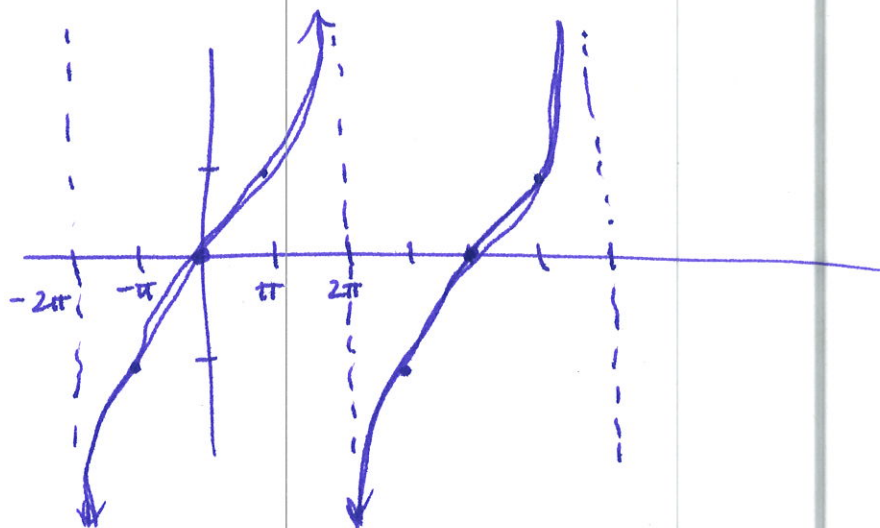
Instructions: Show all work. Give exact answers unless specifically asked to round.

1. Graph the function $y = 2\cos x - 3$ by hand for two periods using key points.

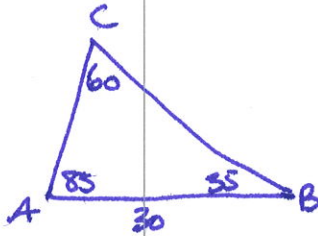2. Graph the function $y = \tan \frac{x}{4}$ by hand, for two periods using key points.

$$\frac{\pi}{\frac{1}{4}} = 4\pi$$

3. Find the domain and range of $h(x) = -3\tan^{-1} x$.

domain $(-\infty, \infty)$

range $\left(-\frac{3\pi}{2}, \frac{3\pi}{2}\right)$

4. Find the triangle with the indicated properties. Find all missing sides and angles.
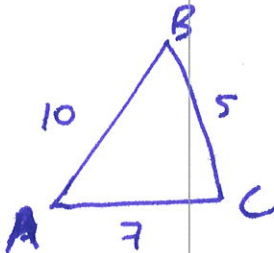   a. $A = 85°, B = 35°, C = 30$

$180 - 85 - 35 = 60$

$\dfrac{30}{\sin 60°} = \dfrac{b}{\sin 35°}$ $b = 19.869...$ 19.9

$\dfrac{30}{\sin 60°} = \dfrac{a}{\sin 85°}$ $a = 34.509...$ 34.5

   b. $a = 5, b = 7, c = 10$

$c^2 = a^2 + b^2 - 2ab \cos C$

$\dfrac{c^2 - a^2 - b^2}{-2ab} = \cos C$

$\dfrac{10^2 - 7^2 - 25}{-2(7)(5)} = \cos C = -.3714...$

$C = 111.8°$

$a^2 = c^2 + b^2 - 2bc \cos A$

$\dfrac{a^2 - c^2 - b^2}{-2bc} = \cos A = .8857$

$A = 27.7°$

$B = 33.5°$