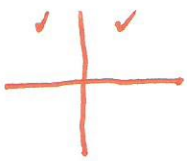
4. (6 points) For what values of x is $cos^{-1}(\cos x) = x$?



$[0, \pi]$

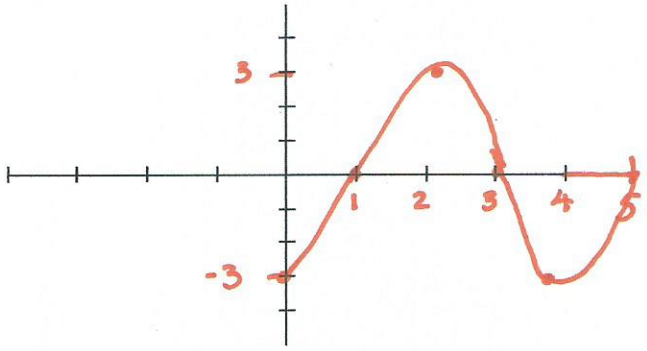
(6 pts)

5. (16 points) For each of the following functions, sketch one period of the graph carefully. Label the grid sufficiently to indicate the period, amplitude and asymptotes.

a. $f(x) = 3\sin\frac{\pi}{2}(x-1)$ (+2) (+2) (+2) (+2)

amp ↑ k ↑ phase shift right 1

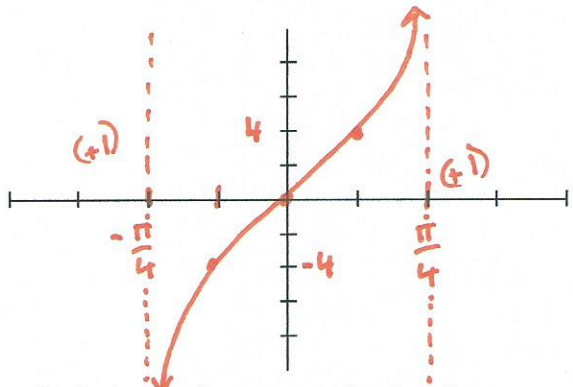
period $= \frac{2\pi}{k} = \frac{2\pi}{\pi/2} = 4$



b. $f(x) = 4\tan(2x)$ (+2)

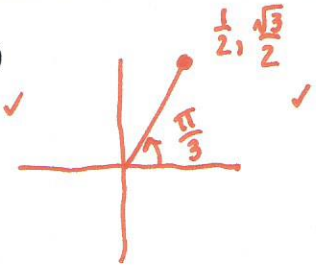
amp (+2) ↑ k

period (+2) $= \frac{\pi}{k} = \frac{\pi}{2}$



6. (16 points) Find the exact values of each of the following. Include a reference angle sketch.

a. $cos^{-1}(\frac{1}{2})$ +5

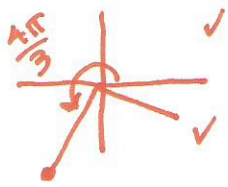


(1 pt)

$\cos\frac{\pi}{3} = \frac{1}{2}$ (1 pt)

$\cos^{-1}(\frac{1}{2}) = \frac{\pi}{3}$ (3 pts)

b. $sin^{-1}(\cos(\frac{4\pi}{3}))$ +5

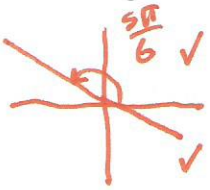


(+2 pts)

$\cos\frac{4\pi}{3} = -\frac{1}{2}$

$\sin^{-1}(-\frac{1}{2}) = -\frac{\pi}{6}$ (+3 pts)

c. $tan^{-1}(\tan(\frac{5\pi}{6}))$ +6



(+3 pts)

$\tan\frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$

$\tan^{-1}(-\frac{\sqrt{3}}{3}) = -\frac{\pi}{6}$ (+3 pts)

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