HW 8-4

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11) $\frac{4\pi}{3}, \frac{5\pi}{3}$

13) $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

25).650, 2.956, 3.791, 6.097

26)3.617, 5.808

28)$0, \pi, \frac{2\pi}{3}, \frac{4\pi}{3}$

GHW#13 Due Friday. Reschedule before Friday if you're not going to be here and get Friday's note sheet. Otherwise you will take the quiz Monday when you return.

Assignment sheet is a day off.

HW: Finish Group Work

13) $2\cos^2 x = 1$

$\cos^2 x = \pm\frac{1}{2}$

$\cos x = \pm\frac{1}{\sqrt{2}} = \pm\frac{\sqrt{2}}{2}$

$\sqrt{x^2} = \sqrt{4}$

$x = \pm 2$

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

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25) $7 = \cot^2 x + 4\cot x$

$\cot^2 x + 4\cot x - 7 = 0$ $\quad a \quad b \quad c$ $\quad P = -7, S = 4$

$\cot x = \frac{-4 \pm \sqrt{16 - 4(1)(-7)}}{2(1)} = \frac{-4 \pm \sqrt{44}}{2}$

$\tan x = \frac{2}{-4 \pm \sqrt{44}}$

$\tan x = \frac{2}{-4 + \sqrt{44}} = .759\ldots$ $\quad \alpha = .64956$

I: $x = .650$

III: $x = 3.791$

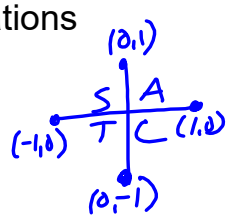
$\tan x = \frac{2}{-4 - \sqrt{44}} = -.188$ $\quad \alpha = .1859\ldots$

II: $x = \pi - \alpha = 2.956$

IV: $x = 2\pi - \alpha = 6.097$

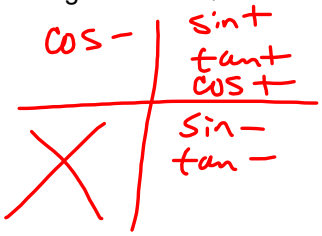
Use to solve trig equations

	$\pi/6$	$\pi/4$	$\pi/3$
sin	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$
cos	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$
tan	$\sqrt{3}/3$	1	$\sqrt{3}$



$x=\pi-\alpha$	$x=\alpha$
$x=\pi+\alpha$	$x=2\pi-\alpha$

Inverse Trig Function Quadrant Restrictions



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Name Key Period

Group work: Day 5 Unit 8

I. Find the exact values in radians for each:

a) $\sin^{-1}\left(\frac{-\sqrt{2}}{2}\right) = -\frac{\pi}{4}$ b) $\csc^{-1}(2) \to \sin^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{6}$ c) $\cot^{-1}(-1) \to \tan^{-1}(-1) = -\frac{\pi}{4}$

II. Evaluate. Exact values leave answers in terms of π or simplest radical form:

a) $\cos^{-1}(\sin(\frac{2\pi}{3})) = \cos^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{6}$ b) $\cos(\sin^{-1}.2) = \frac{2\sqrt{6}}{5}$

$\sin^{-1}.2 = \frac{2}{10} = \frac{1}{5}$

Find all solutions in the interval $[0,2\pi]$: Show all work that we have done in class: Exact value where possible otherwise round your answers to nearest thousandth

1. $\tan x = -\frac{\sqrt{3}}{3}$

$\alpha = \frac{\pi}{6}$ or $X_2 = \frac{5\pi}{6}$ $X_4 = \frac{11\pi}{6}$ $\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

2. $\sec x = 8$

$\cos x = \frac{1}{8}$

$\alpha = 1.445\ldots$ or $X_1 = 1.445$ $X_4 = 4.838$

$\{1.445, 4.838\}$

3. $3\sin^2 x + 2\sin x = 4$

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

$b^2 - 4ac = 4 - 4(3)(-4) = 52$

$\sin x = \frac{-2 \pm \sqrt{52}}{6}$

+ $\sin x = .8685\ldots$ $\alpha = 1.0522\ldots$ $X_1 = 1.052$ or $X_2 = 2.089$

− $\sin x = -1.5351\ldots$ $\emptyset$

$\{1.052, 2.089\}$

4. $5\cos^2 x + 6\cos x = 8$

$5\cos^2 x + 6\cos x - 8 = 0$

$(5\cos x - 4)(\cos x + 2) = 0$ p: −40 S: 6 10, −4

$\cos x = \frac{4}{5}$ $\alpha = .6435\ldots$ $X_1 = .644$ or $X_4 = 5.640$

$\cos x = -2$ $\emptyset$

$\{.644, 5.640\}$

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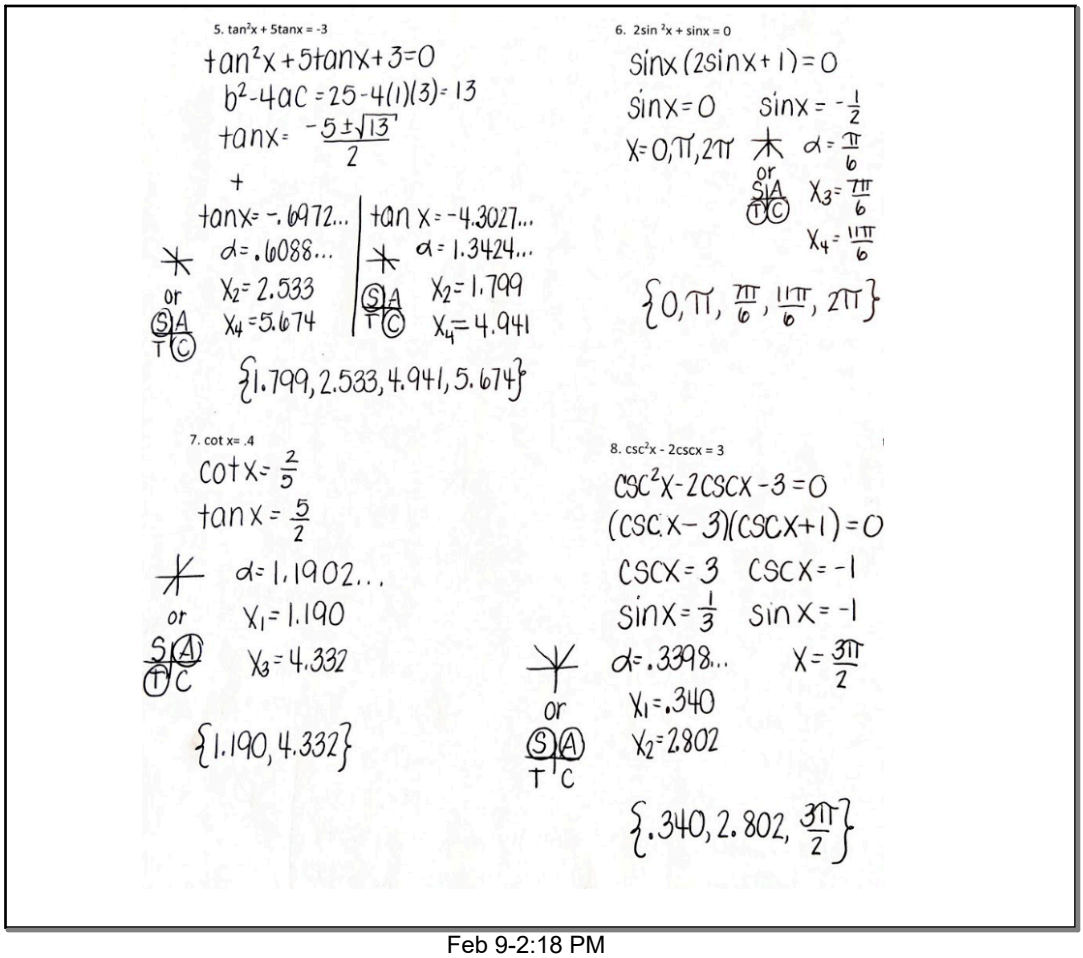

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