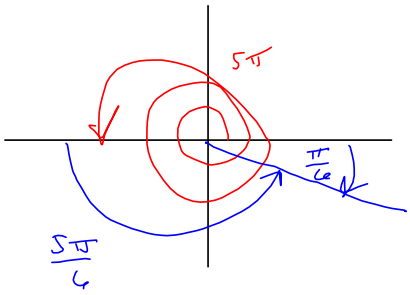
$$\frac{35\pi}{6} = \frac{30\pi}{6} + \frac{5\pi}{6} = 5\pi + \frac{5\pi}{6}$$



$$-\frac{\pi}{6}, \quad -\frac{\pi}{6} + 2\pi = \frac{11\pi}{6}$$

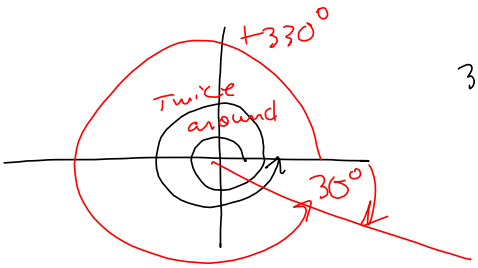
$$\left(\frac{35\pi}{6}\right)\left(\frac{30}{180^\circ}\right) = (35)(30) = 1050^\circ$$

Twice around

$$\frac{1050}{360} = 2.916\ldots$$

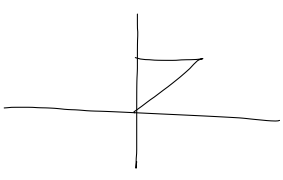
plus this fraction of 360°

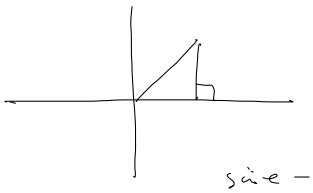
Now take $(.91\overline{6})(360^\circ) = 330^\circ$



$330^\circ, \quad 330^\circ - 360^\circ = -30^\circ$

$\frac{11\pi}{6}, \quad -\frac{\pi}{6}$



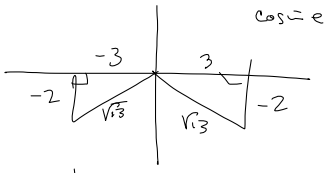


$\sin\theta = -\frac{2}{\sqrt{13}}$

Hypotenuse is ALWAYS POSITIVE

sine – y

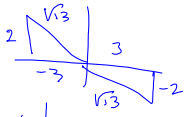
cosine – x



#3 b, c, d thrown out

$\tan\theta = -\frac{2}{3}$

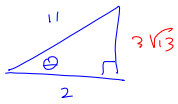
$\sin\theta = -\frac{2}{\sqrt{13}}$



QII ?!!?

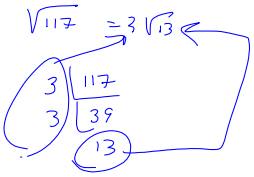
#9 $\tan(\arccos(\frac{3}{11})) = \tan\theta = \frac{3\sqrt{13}}{2}$

(a)



$11^2 - 2^2 = 121 - 4 = 117$

$\sqrt{117} = 3\sqrt{13}$



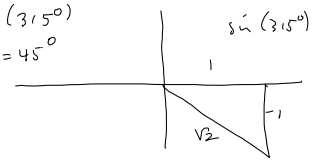
(b) $\arccos\left(\sin\left(\frac{7\pi}{4}\right)\right)$

```
sin(7π/4)
      -.7071067812
cos⁻¹(Ans)
       2.35619449
Ans*180/π
                135
```

$\left(\frac{7\pi}{4}\right)\left(\frac{180^\circ}{\pi}\right) = \frac{(7\pi)(45^\circ)}{\pi} = 7(45^\circ) = 315^\circ$

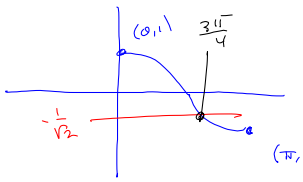
$\sin(315^\circ)$

$360^\circ - 315^\circ = 45^\circ$



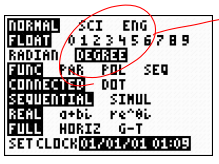
$\sin(315^\circ) = -\frac{1}{\sqrt{2}}$

$\arccos\left(-\frac{1}{\sqrt{2}}\right)$



So it's a 45°-45° right triangle

It's the one between $\frac{\pi}{2}$ & π



→ Do degree mode version

$\frac{7\pi}{4} = 315^\circ$

So $\arccos\left(\sin\left(\frac{7\pi}{4}\right)\right)$

$= \arccos(\sin(135^\circ))$

$= \arccos(-.707106781 2\ldots)$

$= 135^\circ$

```
       2.35619449
Ans*180/π
                135
sin(315)
      -.7071067812
cos⁻¹(Ans)
                135
```

Section 2.2	Done for new Edition, Fall, 2018																							
Video	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Textbook	1	2	3	4	5	6	7	26	12	27	31	37		22	24		41		58	59	45	49	51	55	56

S 2.2 #s 2-8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38-43, 47, 50, 53*, 56, 59, 62, 65, 68, 71, 74, 77, 79*, 88*

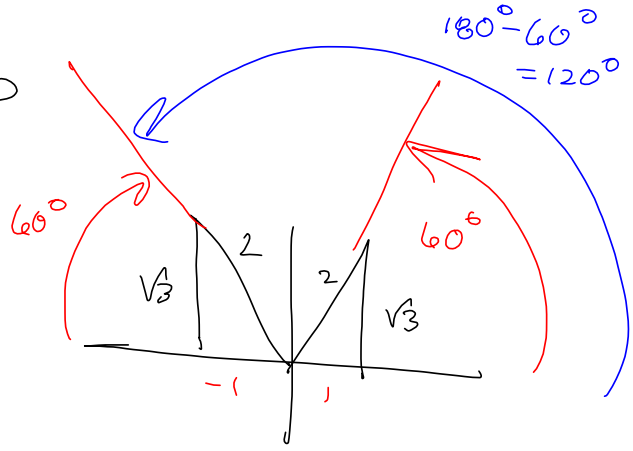
S 2.3

(11) $\sqrt{3}\csc(x) - 2 = 0$

$\sqrt{3}\csc(x) = 2$

$\csc(x) = \frac{2}{\sqrt{3}}$

$\sin(x) = \frac{\sqrt{3}}{2}$



$x = 60°, 120°$

#11 doesn't specify, so I think it wants ALL solutions.

$60° + 360°n, n \in \mathbb{Z}$ OR $\frac{\pi}{3} + 2\pi n, n \in \mathbb{Z}$

$120° + 360°n, n \in \mathbb{Z}$ OR $\frac{2\pi}{3} + 2\pi n, n \in \mathbb{Z}$

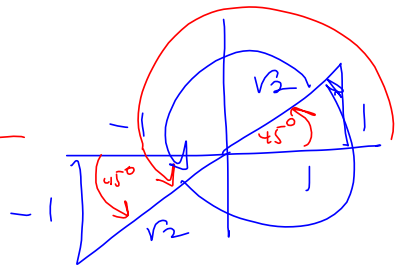
There are infinitely many solns.

29 $\sin x - 2 = \cos x - 2$

$\sin x = \cos x$

Kind of a hinky move.

$\frac{\sin x}{\cos x} = \tan x = 1$ $\quad \overline{\cos x} \quad \overline{\cos x}$



$\frac{\pi}{4} + 2\pi n$ /

$\frac{4\pi}{4} + \frac{\pi}{4} = \frac{5\pi}{4} + 2\pi n, \; n \in \mathbb{Z}$

Finally: $x \in \left\{ \frac{\pi}{4} + 2\pi n, \; \frac{5\pi}{4} + 2\pi n \;\middle|\; n \in \mathbb{Z} \right\}$

They're $180° = \pi$ apart. Capture ALL of them with $\left\{ \frac{\pi}{4} + \pi n \;\middle|\; n \in \mathbb{Z} \right\}$

#24 $2\sec^2 x + \tan^2 x - 3 = 0$

$2(\tan^2 x + 1) + \tan^2 x - 3 = 0$

$2\tan^2 x + 2 + \tan^2 x - 3 = 0$

$3\tan^2 x - 1 = 0$

$(\sqrt{3}\tan x - 1)(\sqrt{3}\tan x + 1) = 0$

$a = 3, b = 0, c = -1$

$b^2 - 4ac = 0^2 - 4(3)(-1) = 12$

$u = \tan x$

$u = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{\pm\sqrt{12}}{2(3)} = \frac{\pm 2\sqrt{3}}{2(3)} = \frac{\pm\sqrt{3}}{3}$

$\sqrt{3}\tan x - 1 = 0$

$\sqrt{3}\tan x = 1$

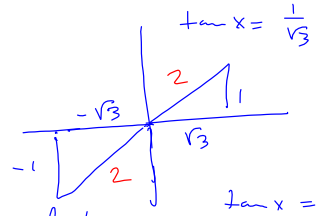
$\tan x = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$3\tan^2 x - 1 = 0$

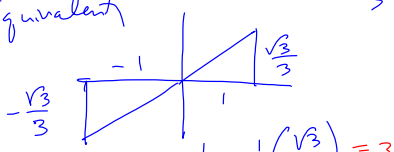
$3\tan^2 x = 1$

$\tan^2 x = \frac{1}{3}$

$\tan x = \pm\sqrt{\frac{1}{3}} = \pm\frac{1}{\sqrt{3}}$ OR $\pm\frac{\sqrt{3}}{3}$ =



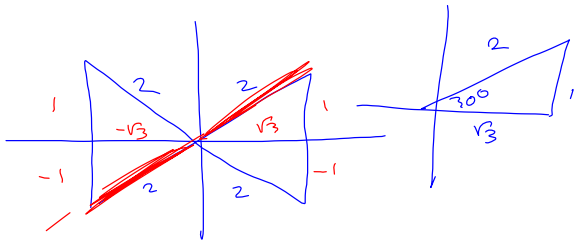
Equivalent



$\tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = 30^\circ$

$\tan x = \pm\frac{1}{\sqrt{3}}$

picture



All Solns.

$30^\circ + 180^\circ n,\ 150^\circ + 180^\circ n,\ n \in \mathbb{Z}$

or

$\frac{\pi}{6} + n\pi,\ \frac{5\pi}{6} + n\pi,\ n \in \mathbb{Z}$

#s24-38: while I showed ALL solns, the instructions require only $x \in [0, 2\pi]$

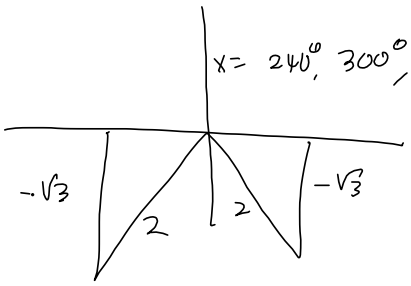
For that we'd have,

$x \in \{30^\circ, 150^\circ, 210^\circ, 330^\circ\}$

4 solutions in $[0, 2\pi]$

#40 $2\sin(2x) + \sqrt{3} = 0$

$\sin(2x) = -\frac{\sqrt{3}}{2}$



#s 39-46: only solve for $x \in [0, 2\pi]$

$\Rightarrow 2x \in [0, 4\pi]$

Need to go twice around the circle!

$2x = 240°, 300°, 600°, 660°$

$\Rightarrow$ $x = 120°, 150°, 300°, 330°$

Quick Pick