

Page 570

2) $\frac{\pi}{3}$

46) $\frac{1}{2}$

6) $\frac{\pi}{4}$

48) $\frac{\pi}{2}$

10) $-\frac{\pi}{3}$

50) $-\frac{\pi}{2}$

14) $-\frac{\pi}{4}$

52) $\frac{4\sqrt{19}}{19}$

18) $\frac{\pi}{3}$

54) $\frac{\pi}{4}$

Jan 19-3:45 PM

6.5 Trig Equations

1. Draw a picture find the reference angle

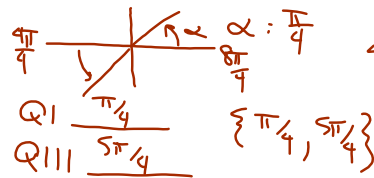
2. Remember: $\begin{matrix} S \\ T \\ C \end{matrix} \begin{matrix} (1,1) \\ (1,0) \\ (0,-1) \end{matrix}$

3. Find the angle in radians using reference angles and quadrants

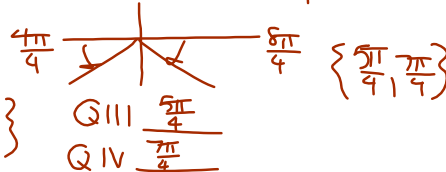
Find exact value(s) where appropriate, to four decimal places otherwise.

Solve, find all solutions $[0, 2\pi)$ Radians only

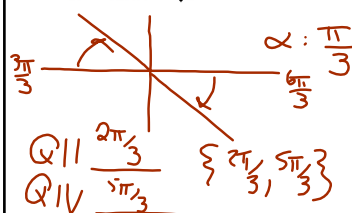
1. $\tan x = 1$



2. $\sin x = -\frac{\sqrt{2}}{2}$ $\alpha = \frac{\pi}{4}$

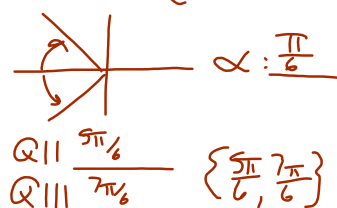


3. $\tan x = -\sqrt{3}$



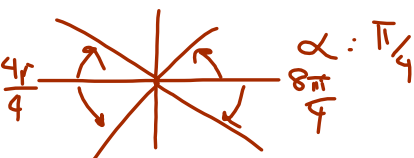
4. $2\cos x = -\sqrt{3}$

$\cos x = -\frac{\sqrt{3}}{2}$



Jan 19-8:46 AM

5. $2\sin^2 x = 1$
 $\frac{2}{2} \sin^2 x = \frac{1}{2}$
 $\sqrt{\sin^2 x} = \sqrt{\frac{1}{2}}$
 $\sin x = \pm \frac{1}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2}$



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

Q I $\frac{\pi}{4}$
 Q II $\frac{3\pi}{4}$
 Q III $\frac{5\pi}{4}$
 Q IV $\frac{7\pi}{4}$

$\left\{ \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4} \right\}$

6. $\sin x + 2 = 3$
 $\sin x = 1$ *Quadrantal
 never will have a ref $\angle$

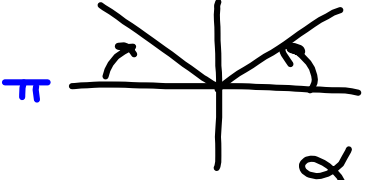


$\left\{ \frac{\pi}{2} \right\}$

Jan 19-8:46 AM

Radian Mode

7. $\sin x = 0.465$

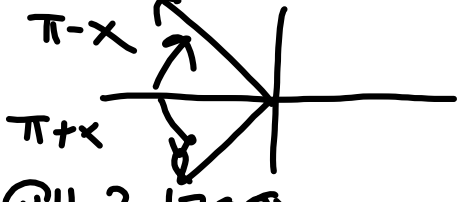


$\alpha = \sin^{-1}(.465)$
 Q I .4836 $\therefore .4836 \rightarrow x$
 Q II $\pi - x$ $\therefore 2.6580$
 $\{.4836, 2.6580\}$

8. $\cos x = -0.564$

$\rightarrow$ never enter the (-) into your calc. when finding the ref $\angle$.

$\alpha = \cos^{-1}(.564)$
 $\therefore .9716 \rightarrow x$



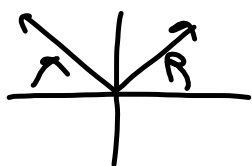
Q II 2.1700
 Q III 4.1132
 $\{2.1700, 4.1132\}$

Jan 19-8:47 AM

8. $\csc x = 2.65$

$$\sin x = \frac{1}{2.65}$$

$$\alpha = \sin^{-1}\left(\frac{1}{2.65}\right) = .3869$$



Q1 : .3869

QII : $\pi - x : 2.7547$

$$\{.3869, 2.7547\}$$

9. $\sec^2 x = 1.245$

$$\sqrt{\cos^2 x} = \sqrt{\frac{1}{1.245}}$$

$$\cos x = \pm \sqrt{\frac{1}{1.245}}$$

$$\alpha = \cos^{-1}\left(\sqrt{\frac{1}{1.245}}\right)$$

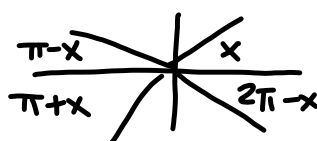
$$= .4596 \rightarrow x$$

QI .4596

QIII 3.6012

QII 2.6820

QIV 5.8236



$$\{.4596, 3.6012, 2.6820, 5.8236\}$$

Jan 19-8:47 AM