SHOW YOUR WORK!

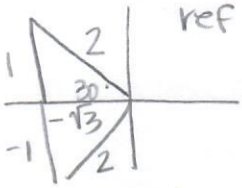
4.1 Inverse Trig Values on the Unit Circle

Name:_____

Find the exact value(s) of θ (in degrees), where $0 \le \theta < 360^\circ$

1. $\theta = \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ $\frac{A}{H}$

ref ∠ 30°



$\boxed{150° \text{ \& } 210°}$

2. $\theta = \sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

$\boxed{60° \text{ \& } 120°}$

3. $\theta = \arcsin\left(-\frac{1}{2}\right)$

$\theta = \sin^{-1}\left(-\frac{1}{2}\right)$

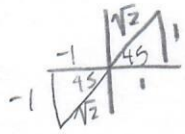
$\boxed{210° \text{ \& } 330°}$

4. $\cos\theta = \left(-\frac{1}{\sqrt{2}}\right)$ ref ∠ 45°

$\boxed{135° \text{ and } 225°}$

5. $\theta = \arctan(1)$

$\theta = \tan^{-1}\left(\frac{1}{1}\right)$



$\boxed{45° \text{ \& } 225°}$

6. $\theta = \arcsin(1)$ NO Δ

where does y = 1

$\boxed{90°}$

7. $\theta = \cos^{-1}(-1)$

	S	CT	
0	0	1	0
90	1	0	U
180	0	-1	0
270	-1	0	U

$\boxed{180°}$

8. $\theta = \sin^{-1}(0)$

0° and 180°

9. $\tan\theta = (-1)$

135° and 315°

10. $\theta = \arccos\left(\frac{1}{2}\right)$

60° & 300°

11. $\sin\theta = (-1)$

270°

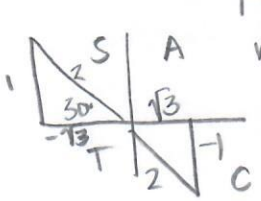
12. $\theta = \cos^{-1}(0)$

90° and 270°

13. $\theta = \cot^{-1}\left(-\sqrt{3}\right)$ $\frac{A}{O}$

1

ref ∠ 30°



$\boxed{150° \text{ and } 330°}$

14. $\theta = \arccos\left(-\frac{1}{\sqrt{2}}\right)$

see #4

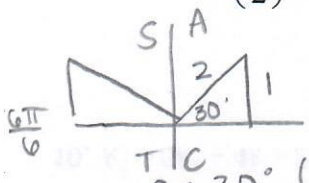
15. $\tan\theta = \left(\frac{-1}{\sqrt{3}}\right)$

150° and 330°

S | A
T | C

Find the exact value(s) of x (in radians), where $0 \le x < 2\pi$

1. $x = \sin^{-1}\left(\frac{1}{2}\right)$



$\frac{6\pi}{6}$

ref∠ 30° $\left(\frac{\pi}{6}\right)$

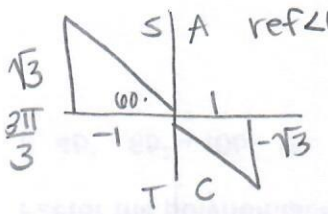
$\boxed{\frac{\pi}{6} \text{ \& } \frac{5\pi}{6}}$

2. $x = \cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$

$\frac{\pi}{6}$ & $\frac{11\pi}{6}$

3. $x = \tan^{-1}\left(\frac{-\sqrt{3}}{1}\right)$ $\frac{O}{A}$

ref∠60° $\left(\frac{\pi}{3}\right)$



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

$\boxed{\frac{2\pi}{3} \text{ \& } \frac{5\pi}{3}}$

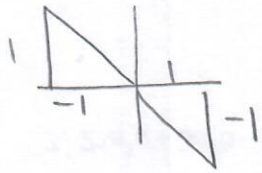
4. $x = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ $\frac{\sqrt{2}}{2} = \frac{1}{\sqrt{2}}$

$\frac{5\pi}{4}$ & $\frac{7\pi}{4}$

5. $x = \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

$\frac{5\pi}{6}$ & $\frac{7\pi}{6}$

6. $x = \tan^{-1}(-1)$ ref ∠ $\frac{\pi}{4}$

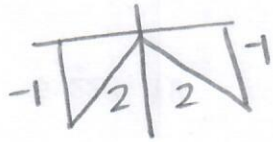


$\boxed{\frac{3\pi}{4} \text{ \& } \frac{7\pi}{4}}$

7. $x = \tan^{-1}(-1)$

see #6

8. $x = \csc^{-1}(-2)$ $\frac{H}{O}$ ref ∠ $\frac{\pi}{6}$



$\boxed{\frac{7\pi}{6} \text{ \& } \frac{11\pi}{6}}$

9. $x = \cos^{-1}(0)$

where x = 0

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

10. $x = \sin^{-1}(-1)$

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

11. $x = \sec^{-1}(-2)$

$\frac{2\pi}{3}$ & $\frac{4\pi}{3}$

12. $x = \cot^{-1}\left(\frac{\sqrt{3}}{1}\right)$

$\frac{\pi}{6}$ & $\frac{7\pi}{6}$