

## 5.6 Arc Trig Functions Day 1

Find the exact value.

1.)  $\sin^{-1}\left(\tan\left(-\frac{\pi}{4}\right)\right)$

$\sin^{-1}(-1)$

$\boxed{-\frac{\pi}{2}}$

2.)  $\arctan(\cos \pi)$

$\arctan(-1)$

$\boxed{-\frac{\pi}{4}}$

3.)  $\cos^{-1}\left(\sin \frac{\pi}{3}\right)$

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

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

4.)  $\sin^{-1}\left(\cot \frac{\pi}{4}\right)$

$\sin^{-1}(1)$

$\boxed{\frac{\pi}{2}}$

5.)  $\arccos(\tan 0)$

$\arccos(0)$

$\boxed{\frac{\pi}{2}}$

6.)  $\cos^{-1}\left(\csc\left(-\frac{\pi}{2}\right)\right)$

$\cos^{-1}(-1)$

$\boxed{\pi}$

7.)  $\arctan\left(\cos \frac{\pi}{2}\right)$

$\arctan(0)$

$\boxed{0}$

8.)  $\cos^{-1}\left(\cos \frac{3\pi}{4}\right)$

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

$\boxed{\frac{3\pi}{4}}$

Find all values for  $\theta$ , if  $\theta$  is in the interval  $[0, 2\pi)$ .

13.)  $\cot \theta = -\frac{\sqrt{3}}{3} = -\frac{1}{\sqrt{3}}$

$$\boxed{\frac{2\pi}{3}, \frac{5\pi}{3}}$$

14.)  $\cos \theta = \frac{\sqrt{2}}{2}$

$$\boxed{\frac{\pi}{4}, \frac{7\pi}{4}}$$

Find all values for  $\theta$ , if  $\theta$  is in the interval  $[0^\circ, 360^\circ)$ .

15.)  $\sin \theta = 1$

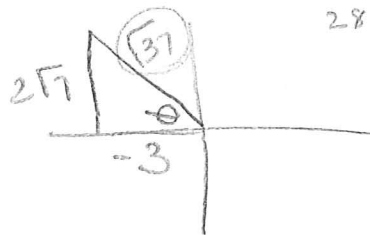
$$\boxed{90^\circ}$$

16.)  $\csc \theta = -\frac{2\sqrt{3}}{3} = -\frac{2}{\sqrt{3}}$

$$\boxed{240^\circ, 300^\circ}$$

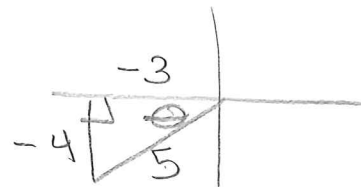
Find the six trigonometric functions with the given information

17.)  $(-3, 2\sqrt{7})$



$$\begin{aligned} (2\sqrt{7})^2 + (-3)^2 &= r^2 \\ 28 + 9 &= \\ 37 &= r^2 \\ \sqrt{37} &= r \end{aligned}$$

18.)  $\csc \theta = -\frac{5}{4}$  and  $180^\circ < \theta < 270^\circ$



$$\begin{aligned} (-4)^2 + x^2 &= 5^2 \\ x^2 &= 9 \\ x &= -3 \end{aligned}$$

$\sin \theta = \frac{2\sqrt{7}}{\sqrt{37}}$	$\csc \theta = \frac{\sqrt{37}}{2\sqrt{7}}$
$\cos \theta = \frac{-3}{\sqrt{37}}$	$\sec \theta = -\frac{\sqrt{37}}{3}$
$\tan \theta = \frac{2\sqrt{7}}{-3}$	$\cot \theta = -\frac{3}{2\sqrt{7}}$

$\sin \theta = -\frac{4}{5}$	$\csc \theta = -\frac{5}{4}$
$\cos \theta = -\frac{3}{5}$	$\sec \theta = -\frac{5}{3}$
$\tan \theta = \frac{4}{3}$	$\cot \theta = \frac{3}{4}$