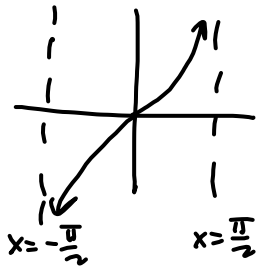


§ 2.2 #s 1-7, 11, 15, 17, 19, 21, 24, 30, 32, 38  
41, 42, 48, 49, 53, 57, 59, 63, 64

$\tan^{-1} x$  has range



$\tan x$  restricted to be 1-to-1

$$D = \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$$

$$R = (-\infty, \infty)$$

So  $\tan^{-1} x = \arctan(x)$ ,  
on your calculator only  
outputs angles between  
 $-\frac{\pi}{2} < \frac{\pi}{2}$

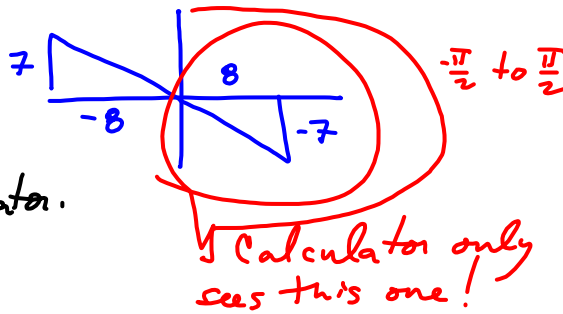
$\arctan(x)$

$$D = (-\infty, \infty)$$

$$R = \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$$

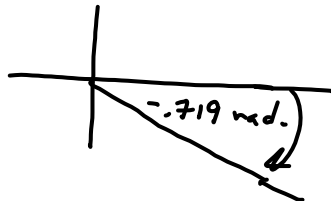
$$\tan \theta = -\frac{7}{8}$$

$\theta$  has terminal side in QII,  
so it's NOT the angle your calculator.

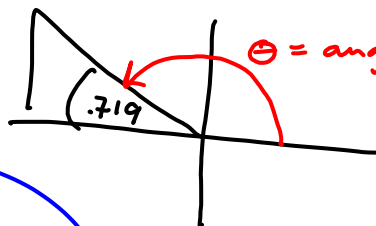


```
tan-1(-7/8)
-.7188299996
```

So,  $\arctan\left(-\frac{7}{8}\right) \approx -.7188299996$



We want



$\theta =$  angle we want

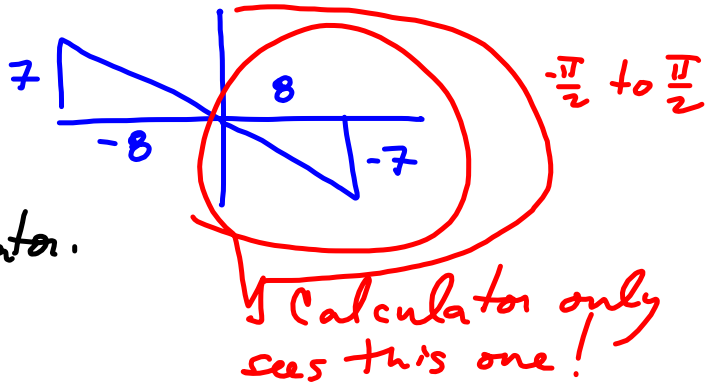
$$\text{So } \pi - .7188299996$$

is the angle

with terminal side in QII that satisfies  $\tan \theta = -\frac{7}{8}$

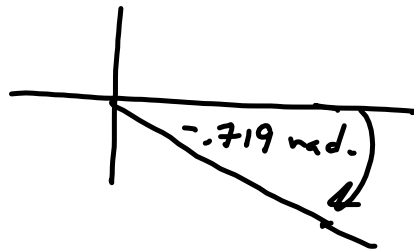
$-.58803$

$\Theta$  has terminal side in QII, so it's NOT the angle your calculator.

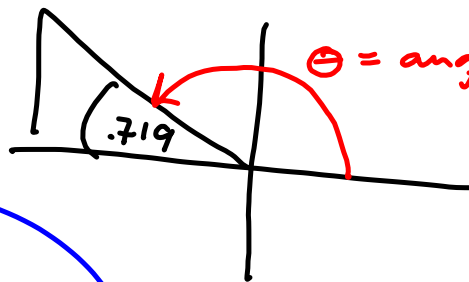


```
tan-1(-7/8)
-.7188299996
```

So,  $\arctan\left(-\frac{7}{8}\right) \approx -.7188299996$



we want



$\Theta =$  angle we want

So  $\pi - .7188299996$  is the angle

with terminal side in QII that satisfies  $\tan \Theta = -\frac{7}{8}$

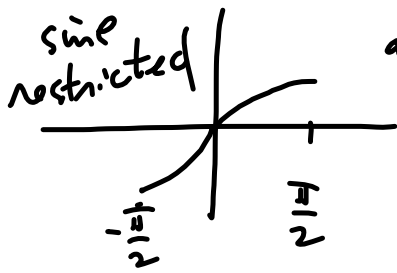
$-.58803$

```

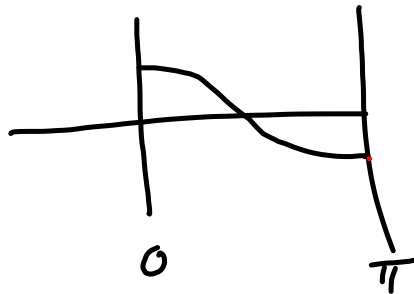
tan-1(-7/8)
-.7188299996
Ans-π
-3.860422653

```

$\approx \theta =$  the sol'n we want  
in QII.

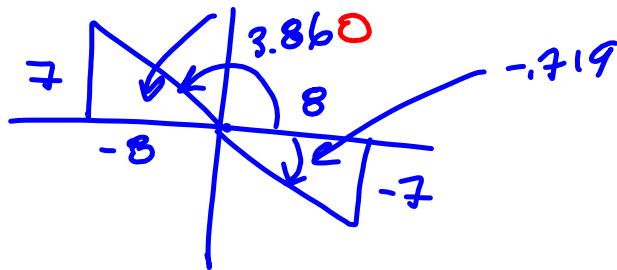


arcsine only reports  
angles in QI & QIV



arccosine  
only  
sees  
QI & QII

All solutions to  $\tan \theta = -\frac{7}{8}$



$$3.860 + 2n\pi$$

$$-7.19 + 2n\pi$$

$$\left. \begin{array}{l} 3.860 + 2n\pi \\ -7.19 + 2n\pi \end{array} \right\} 3.860 + n\pi$$

↑ clobbers all  
of 'em.

