

Instructions: Show all work. Use exact answers unless specifically asked to round. Answer all parts of each question.

1. Evaluate the following expressions.

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

b. $\tan^{-1}(1) = \pi/4$

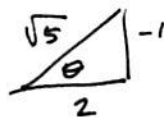
c. $\sec^{-1}(-2) = 2\pi/3$

2. Evaluate the following expressions and write them without any trig functions.

a. $\cos^{-1}(\sin x) = \pi/2 - x$



b. $\tan^{-1}\left(\cos \frac{4\pi}{3}\right) = -0.463647$
radians

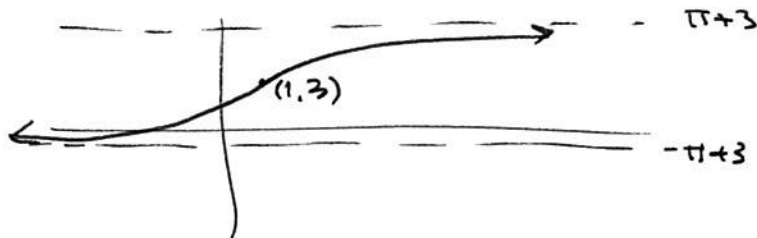


$\cos 4\pi/3 = -1/2$
 $\tan^{-1}(-1/2) \Rightarrow \theta$ not a standard angle
 $\tan \theta = -1/2$

c. $\sin(\sec^{-1}(-1)) = 0$

d. $\cot\left(\tan^{-1}\left(-\frac{5}{12}\right)\right) = -\frac{12}{5}$

3. Sketch the graph of $f(x) = 2 \arctan(x - 1) + 3$. State the domain and range.



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

$R: (-\pi + 3, \pi + 3)$