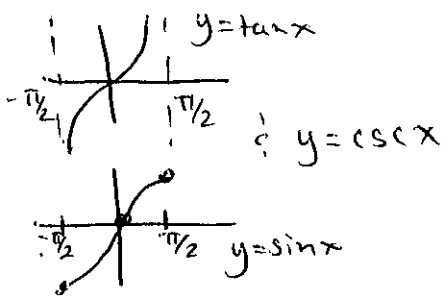


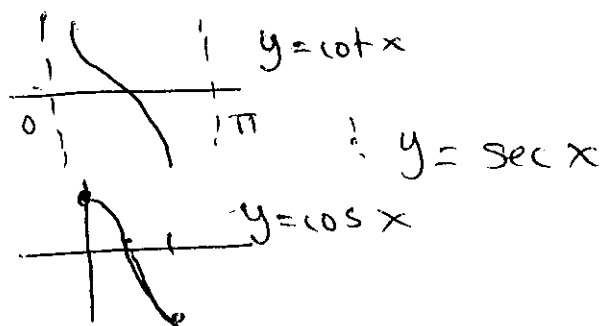
Inverse Trig Functions.



$[-\pi/2, \pi/2]$ is where the inverse passes horizontal line test and thus a function.

Ex: $\arcsin 1/2 = \pi/6$ Ex: $\arctan -1 = -\pi/4$

Ex: $\operatorname{arccsc} \frac{-2\sqrt{3}}{3} = -\pi/3$ Ex: $\sin^{-1}(\frac{\sqrt{2}}{2}) = \pi/4$



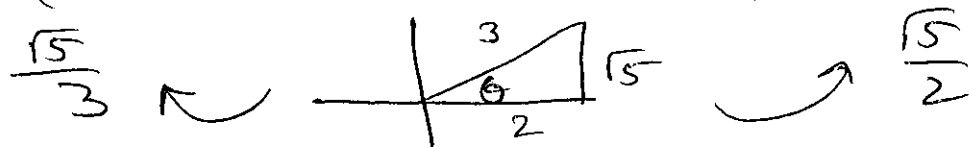
defined $[\pi, 2\pi]$

Ex: $\arccos 1/2 = \pi/3$ Ex: $\arccos -\frac{\sqrt{3}}{2} = \frac{5\pi}{6}$

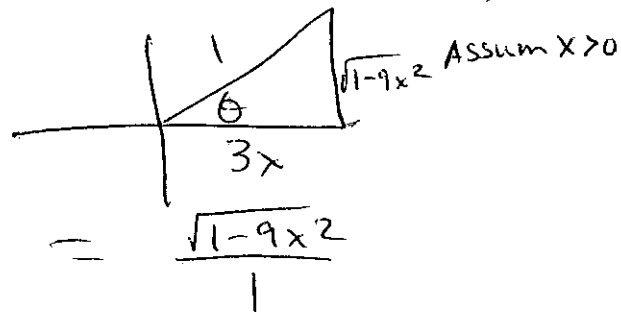
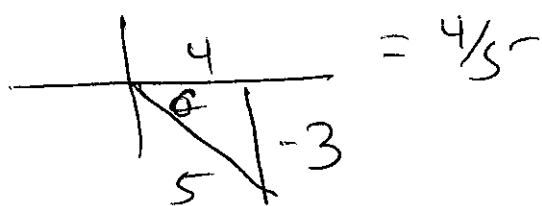
Ex: $\operatorname{arccot} -1 = 3\pi/4$ Ex: $\operatorname{arcsec} -2 = 2\pi/3$

Ex: $\tan[\arctan -5] = -5$ Ex: $\arcsin(\sin \frac{5\pi}{3}) = -\pi/3$

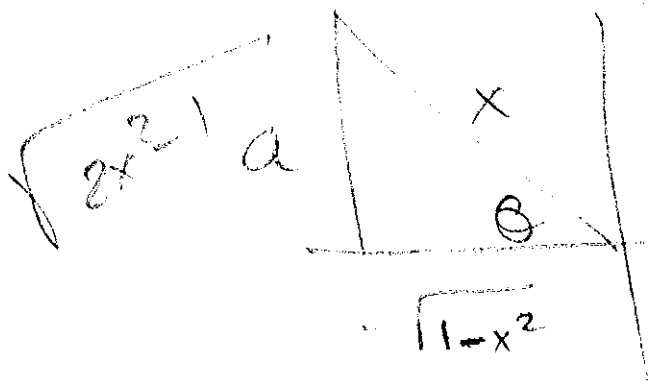
Ex: $\sin(\arccos 2/3)$ Ex: $\tan(\arccos 2/3)$



Ex: $\cos[\arcsin -3/5]$ Ex: $\sin(\arccos 3x)$



$$-\tan\left(\arccos\frac{\sqrt{1-x^2}}{x}\right)$$



$$\tan\theta = \frac{\sqrt{1-x^2}}{a}$$

$$x^2 = a^2 + (\sqrt{1-x^2})^2$$

$$x^2 = a^2 + 1 - x^2$$

$$2x^2 = a^2 + 1$$

$$2x^2 - 1 = a^2$$

① $\sin^{-1}(0) = 0$

④ $\sec^{-1}(-\sqrt{2}) = \frac{3\pi}{4}$

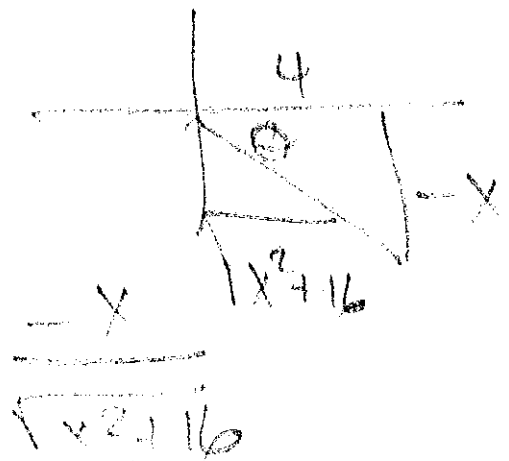
② $\tan^{-1}\left(\frac{3}{4}\right) = \frac{\pi}{6}$

⑤ $\tan \arccos \frac{3}{5} = \frac{4}{3}$

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

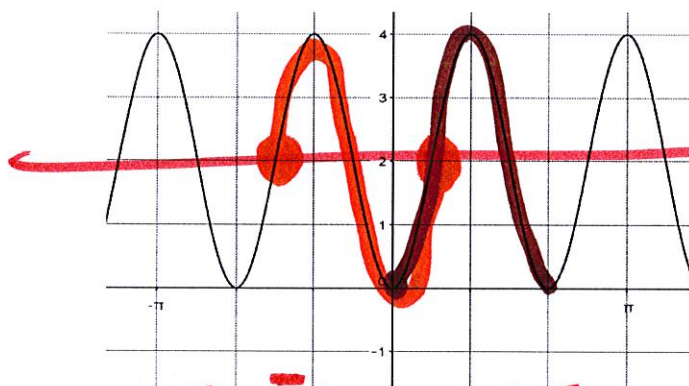
$$\frac{\sqrt{2}}{2}$$

⑥ $\sin(\arccos \frac{x}{4})$



Write a sine and cosine equation for each graph.

1.



amp = 2
 per = $\frac{2\pi}{3} = \frac{2\pi}{b}$

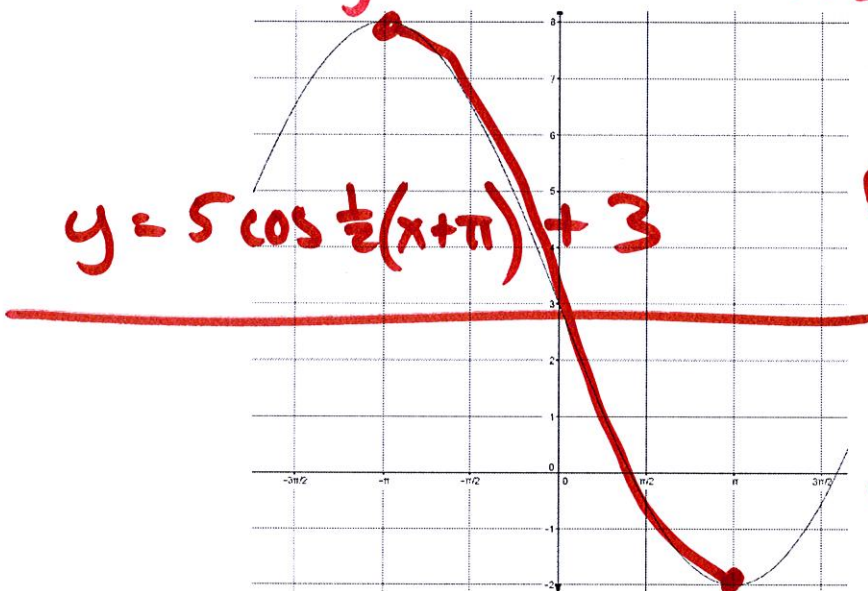
$b = 3$

v.s. up 2

$y = -2 \cos 3(x) + 2$

$y = 2 \sin 3(x + \pi/2) + 2$

2.



$y = 5 \cos \frac{1}{2}(x + \pi) + 3$

amp 5

Period 4π

$4\pi = \frac{2\pi}{b}$

$b = 1/2$

v.s. up 3