

Func	Alternate	Domain	Range
① $y = \arcsin x = \sin^{-1}(x)$		$x \in [-1, 1]$	$y \in [-\frac{\pi}{2}, \frac{\pi}{2}]$
② $y = \arccos x = \cos^{-1}(x)$		$x \in [-1, 1]$	$y \in [0, \pi]$
③ $y = \arctan x = \tan^{-1}(x)$		$x \in (-\infty, \infty)$	$y \in (-\frac{\pi}{2}, \frac{\pi}{2})$
④ w/o restrictions,	no trig func has an		

1 eq

inverse. Everything else 2pts each exercise

#5-15 Evaluate the expression w/o calculator

⑤ $\arcsin(\frac{1}{2})$

$\frac{\pi}{6} = 30^\circ$

⑧ $\arccos(0)$

$\frac{\pi}{2} = 90^\circ$

$\frac{12}{2} = 24$

28 poss
7pts correct

⑨ $\arctan \frac{\sqrt{3}}{3}$

$\frac{\pi}{6} = 30^\circ$

⑮ $\arccos(-\frac{1}{2})$

$120^\circ = \frac{2\pi}{3}$

#22-26 Use calculator. Round to 2 places

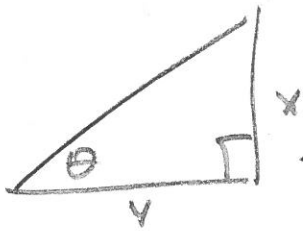
⑳ $\arcsin(.65)$

$\approx 40.54^\circ \approx .71$

ALWAYS DRAW THE PICTURES!

*s 41-45 write θ as a function of x

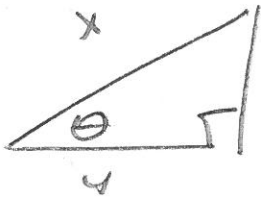
(41)



$$\frac{x}{y} = \tan \theta \rightarrow$$

$$\boxed{\arctan\left(\frac{x}{y}\right) = \theta}$$

(42)

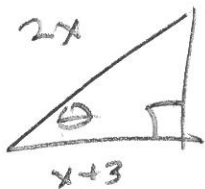


$$\cos \theta = \frac{y}{x} \rightarrow$$

$$\boxed{\theta = \arccos\left(\frac{y}{x}\right)}$$

$$\text{OR} = \arcsin\left(\frac{x}{y}\right)$$

(45)



$$\cos \theta = \frac{x+3}{2x} \rightarrow$$

$$\boxed{\theta = \arccos\left(\frac{x+3}{2x}\right)}$$

*s 51-2 use properties of inverse trig funcs to evaluate the expression.

$$(51) \arcsin(\sin(3\pi))$$

$$= \arcsin(0)$$

$$= \boxed{0}$$

(52)

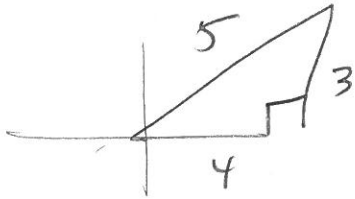
$$\arccos(\cos(\frac{7\pi}{2}))$$

$$= \arccos(0)$$

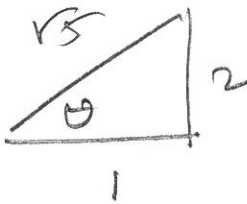
$$\boxed{= \frac{\pi}{2}}$$

#s 53-58 Find the exact value of the expression

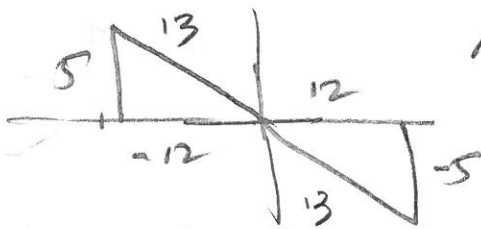
(53) $\sin(\arctan(\frac{3}{4})) = \sin \theta = \frac{3}{5}$



(55) $\cos(\tan^{-1}(2)) = \cos(\arctan(2)) = \cos \theta = \frac{1}{\sqrt{5}}$



(58) $\csc(\arctan(-\frac{5}{12})) = \csc \theta = \frac{13}{5}$



$144 + 25 = 169 = 13^2$

Ambiguous
could be either of the
2 triangles, EXCEPT
you know range of $\arctan \theta$
is $(-\frac{\pi}{2}, \frac{\pi}{2})$, so it MUST

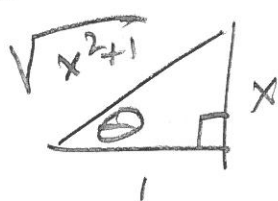
be $\text{QIV} \Rightarrow$

$\csc \theta = -\frac{13}{5}$ or
not $+\frac{13}{5}$

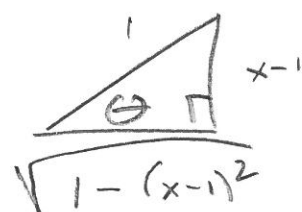
122 § 1.7

§ 1.7-70 Write an algebraic expression that is equivalent to the given trig expression

(66) $\sin(\arctan x) = \sin \theta = \frac{x}{\sqrt{x^2+1}}$



(70) $\sec(\arcsin(x-1)) = \sec \theta = \frac{1}{\sqrt{1-(x-1)^2}}$



(102) $\arctan x \xrightarrow{x \rightarrow -\infty} -\frac{\pi}{2}$

