

Calculus AB

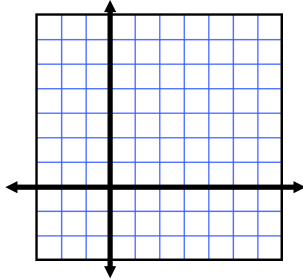
5-6

Inverse Trigonometric Functions

$$f(x) = \arcsin x \quad \text{or} \quad f(x) = \sin^{-1} x$$

domain:

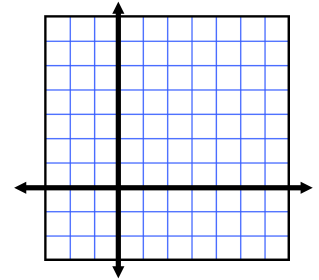
range :



$$f(x) = \arccos x \quad \text{or} \quad f(x) = \cos^{-1} x$$

domain:

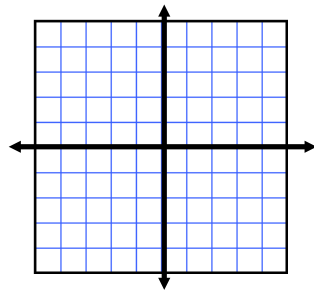
range :



$$f(x) = \arctan x \quad \text{or} \quad f(x) = \tan^{-1} x$$

domain:

range :



Evaluate each expression without using a calculator. (pg 379)

$$*) \arcsin \frac{\sqrt{3}}{2}$$

Evaluate the expression without using a calculator.

$$18a) \tan \left[\arccos \left(-\frac{1}{\sqrt{2}} \right) \right]$$

$$18b) \cos \left[\arcsin \left(\frac{5}{13} \right) \right]$$

Write the expression in algebraic form.

$$28) \sec(\arctan 4x)$$

Assignment: Pg. 379 5-33 odd

Calculus AB

5-6

Inverse Trigonometric Functions: Differentiation

Find the derivative of each. (pg 379)

45) $g(x) = 3\arccos\frac{x}{2}$

49) $g(x) = \frac{\arcsin 3x}{x}$

Function	Derivative
$f(x) = \arcsin(x)$	$\frac{u'}{\sqrt{1-u^2}}$
$f(x) = \arccos(x)$	$\frac{-u'}{\sqrt{1-u^2}}$
$f(x) = \arctan(x)$	$\frac{u'}{1+u^2}$
$f(x) = \operatorname{arccsc}(x)$	$\frac{-u'}{ u \sqrt{u^2-1}}$
$f(x) = \operatorname{arcsec}(x)$	$\frac{u'}{ u \sqrt{u^2-1}}$
$f(x) = \operatorname{arccot}(x)$	$\frac{-u'}{1+u^2}$

Assignment:

Pg. 379
43 - 63 odd
97