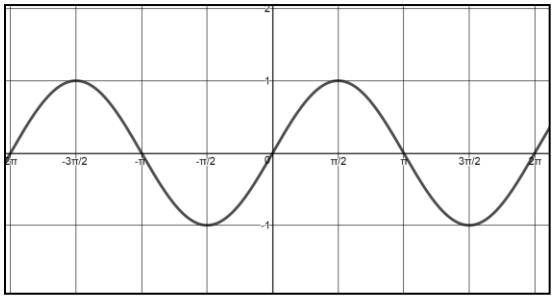
PreCalculus

Notes: 4.7 Inverse Trigonometric Functions

Name_____

Date_____**Block**_____

Graph of $y = \sin x$



Restrict the domain to:

On this interval:

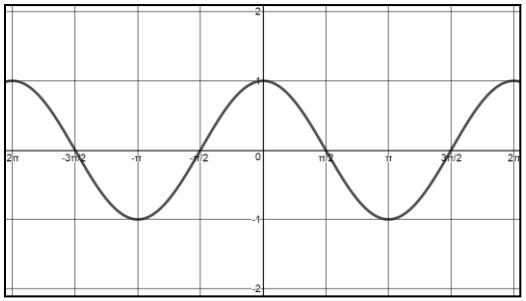
*

*

*

$x = \sin y$					
y					

Graph of $y = \cos x$



Restrict domain to:

On this interval:

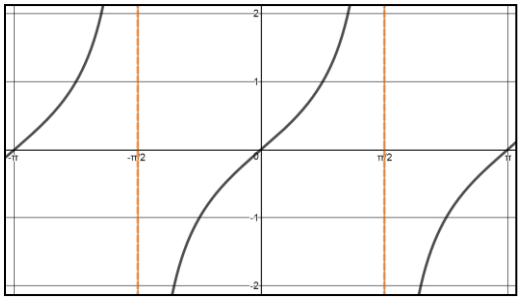
*

*

*

$x = \cos y$					
y					

Graph of $y = \tan x$



Restrict domain to:

On this interval:

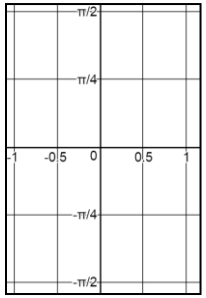
*

*

*

$x = \tan y$					
y					

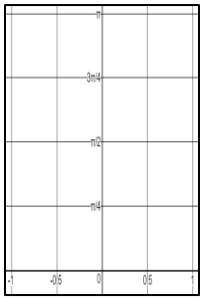
Graph of $y = \arcsin x$



Domain:

Range:

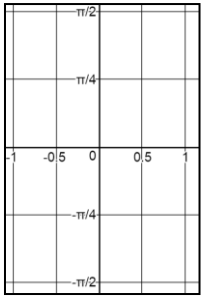
Graph of $y = \arccos x$



Domain:

Range:

Graph of $y = \arctan x$



Domain:

Range:

Summarize the domain and range for each inverse trigonometric function.

Function	Domain	Range	Quadrants
$y = \arcsin x$			
$y = \arccos x$			
$y = \arctan x$			

In 1 – 9, find the exact value of each expression without a calculator.

1. $\arcsin\left(-\frac{1}{2}\right)$
2. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$
3. $\sin^{-1}(2)$
4. $\arccos\left(\frac{\sqrt{2}}{2}\right)$
5. $\cos^{-1}(-1)$
6. $\arccos\left(\frac{\sqrt{3}}{2}\right)$
7. $\arctan 0$
8. $\tan^{-1}(-1)$
9. $\arctan\left(\frac{\sqrt{3}}{3}\right)$

For You ☺ In 10 - 18, find the exact value of each expression without a calculator.

10. $\arcsin(-1)$
11. $\sin^{-1}\left(\frac{1}{2}\right)$
12. $\sin^{-1}\left(\sqrt{3}\right)$
13. $\cos^{-1}\left(-\frac{1}{2}\right)$
14. $\arccos\left(-\frac{\sqrt{2}}{2}\right)$
15. $\cos^{-1}\left(\sqrt{3}\right)$
16. $\arctan 1$
17. $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$
18. $\tan^{-1}\left(\sqrt{3}\right)$

In 19 - 30, find the exact value of each expression without a calculator.

19. $\tan(\arctan(-5))$

20. $\arcsin\left(\sin\frac{5\pi}{3}\right)$

21. $\cos(\cos^{-1}1)$

22. $\tan(\arctan(-14))$

23. $\sin(\arcsin\pi)$

24. $\cos(\arccos(0.54))$

25. $\tan\left(\arccos\frac{2}{3}\right)$

26. $\cos\left(\arcsin\left(-\frac{3}{5}\right)\right)$

27. $\sin(\arccos 3x)$

28. $\cot(\arccos 3x)$

29. $\cot\left(\arctan\frac{1}{x}\right)$

30. $\csc\left(\arctan\frac{x}{\sqrt{2}}\right)$