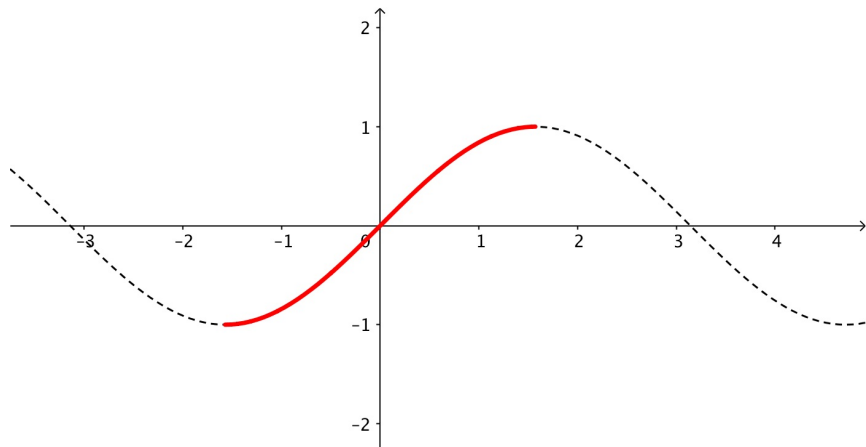


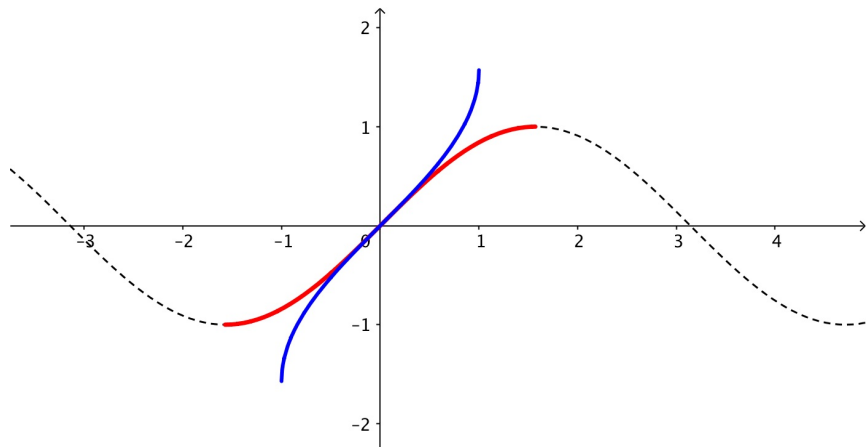
Some notes from class

2018-01-17

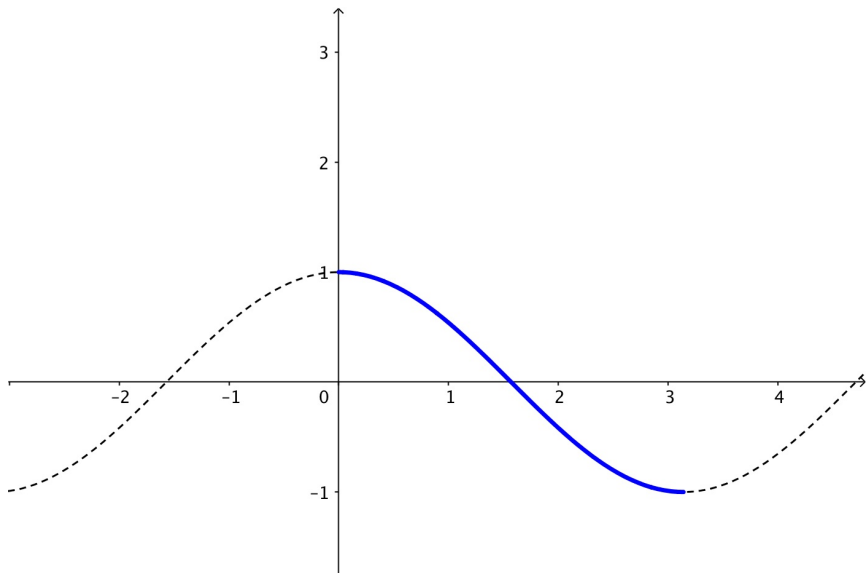
$$f(x) = \sin x$$



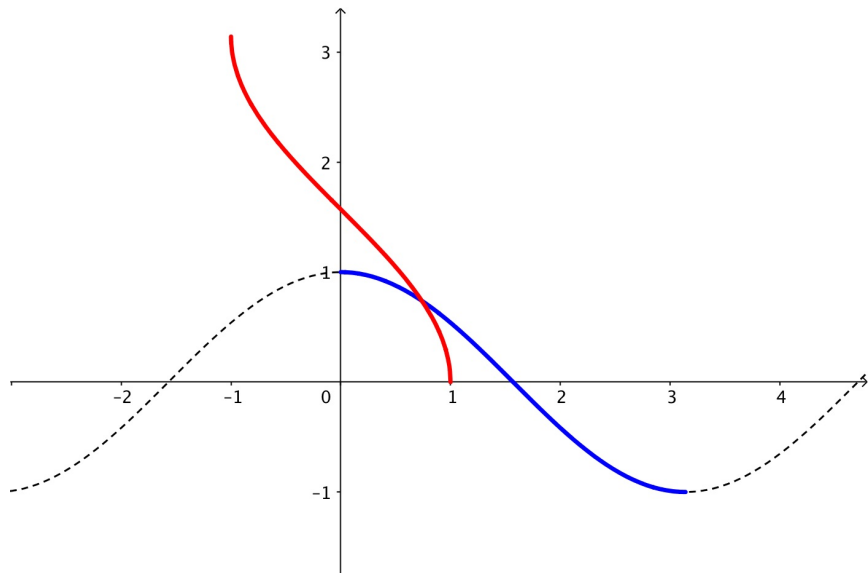
$$f(x) = \sin x$$



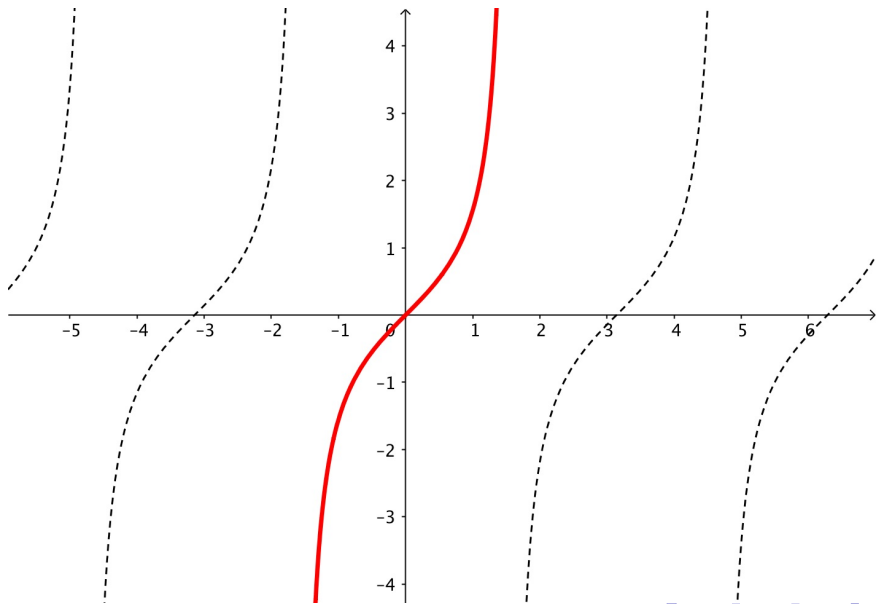
$$f(x) = \cos x$$



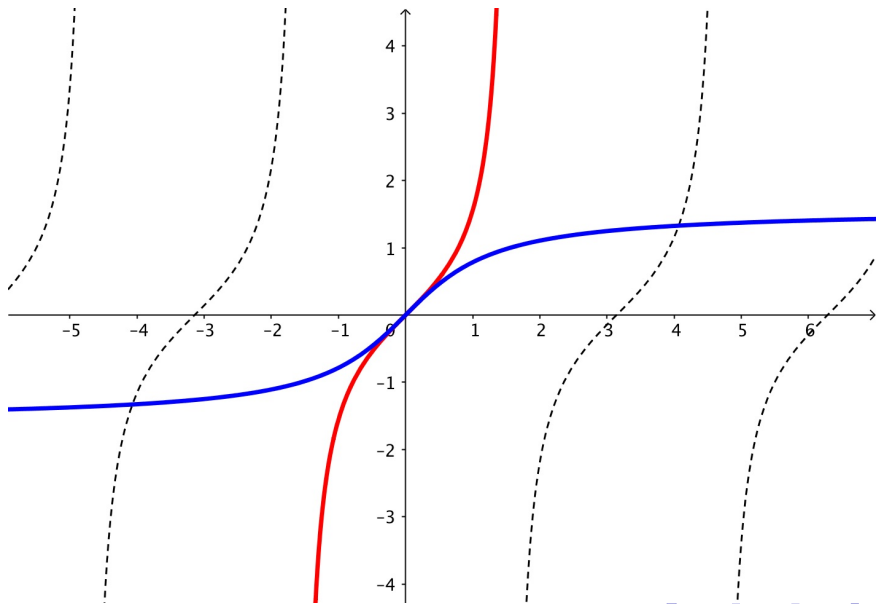
$$f(x) = \cos x$$



$$f(x) = \tan x$$



$$f(x) = \tan x$$



Derivative of $\sin^{-1} x$

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

$$f'(x) = \cos x$$

$$(f^{-1})' = \frac{1}{f'(f^{-1}(x))} = \frac{1}{\cos(\sin^{-1} x)} = \frac{1}{\cos(\theta)}$$

Derivative of $\tan^{-1} x$

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

$$f'(x) = \sec^2 x$$

$$(f^{-1})'(x) = \frac{1}{f'(f^{-1}(x))} = \frac{1}{\sec^2(\tan^{-1} x)} = \frac{1}{\sec^2(\theta)}$$

Derivative of $\sec^{-1} x$

$$f(x) = \sec x \quad f^{-1}(x) = \sec^{-1} x$$

$$f'(x) = \sec x \tan x$$

$$(f^{-1})'(x) = \frac{1}{f'(f^{-1}(x))} = \frac{1}{\sec(\sec^{-1} x) \tan(\sec^{-1} x)} = \frac{1}{x \tan(\theta)}$$