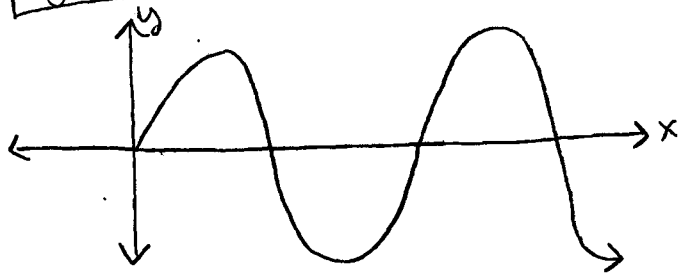
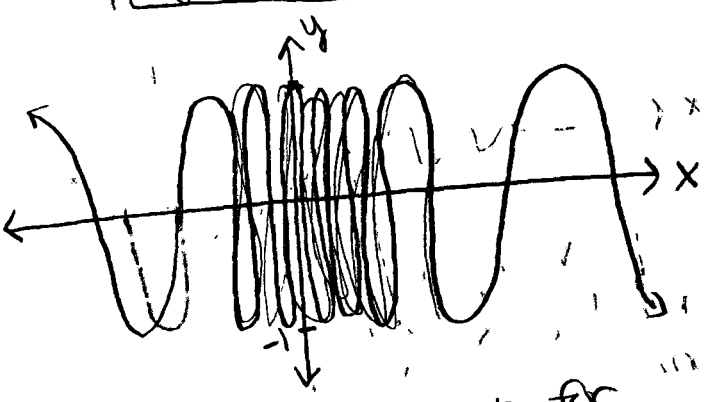
Lecture #25
MAT 123

A Garden of Graphs

$y = \sin x$

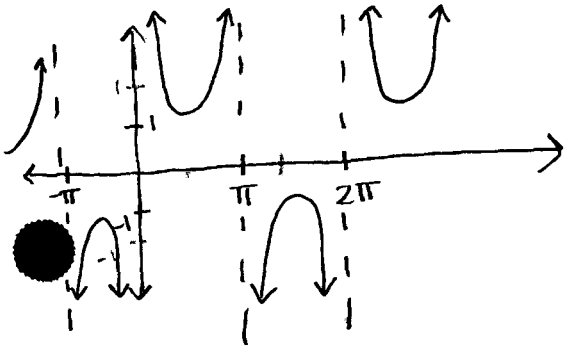


$y = \sin\left(\frac{1}{x}\right)$

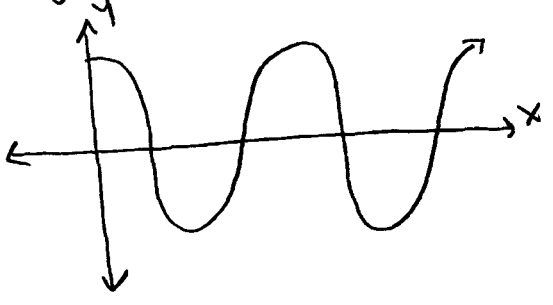


*note: the graph for $y = \sin\frac{1}{x}$ should look like this (the amplitude does NOT change!)

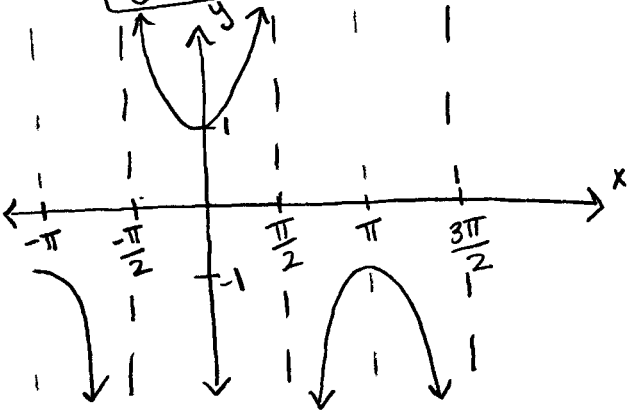
$y = \frac{1}{\sin x} = \csc x$



$y = \cos x$



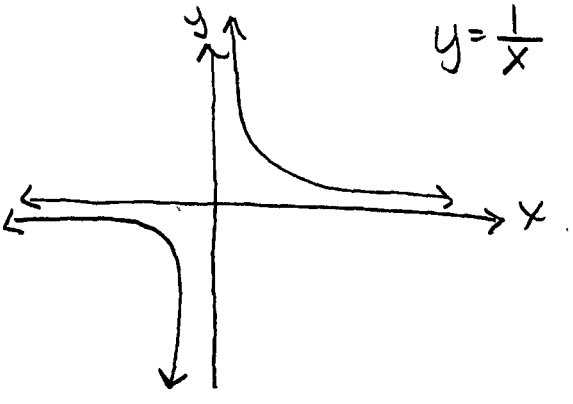
$y = \frac{1}{\cos x} = \sec x$



*note:

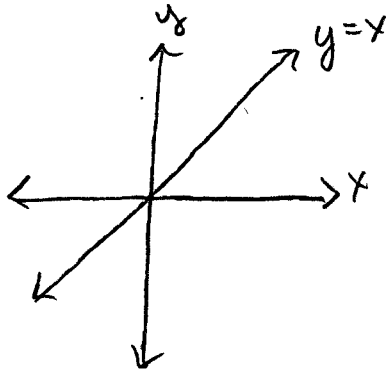
positive # → $\frac{1}{\text{small \#}} = \text{Big \#}$

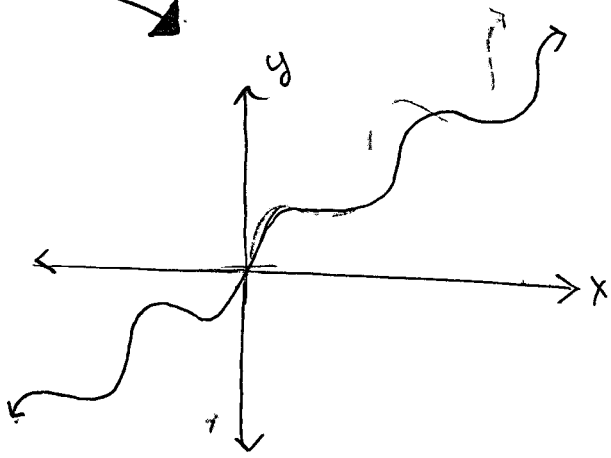
$\frac{1}{\text{Big \#}} = \text{small \#}$



$y = \frac{1}{x}$

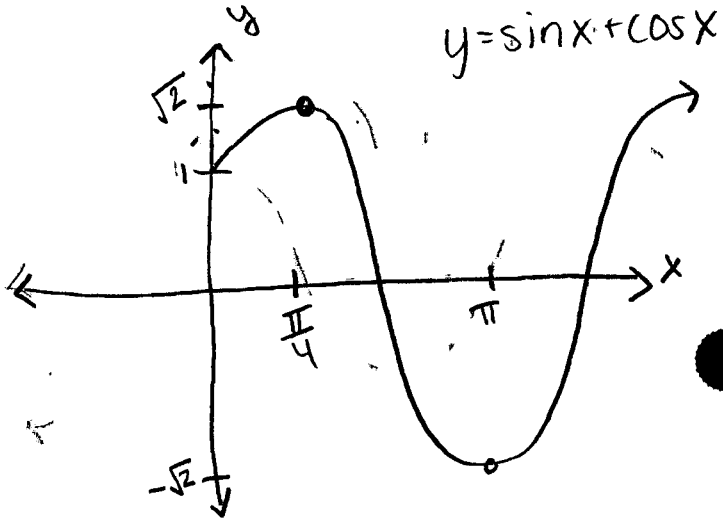
$y = x + \sin x$



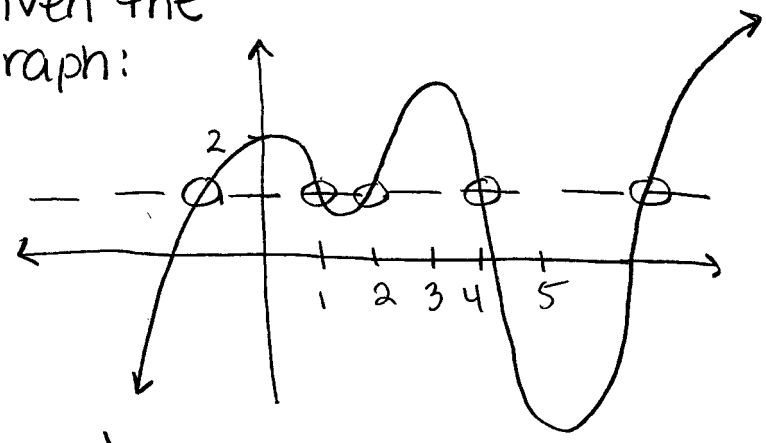


$y = \sin x + \cos x$

x	$\sin x$	$\cos x$	$\sin x + \cos x$
0	0	1	1
$\frac{\pi}{6}$	$1/2$	$\sqrt{3}/2$	1.3
$\frac{\pi}{4}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1.4
$\frac{\pi}{3}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	1.3
$\frac{\pi}{2}$	1	0	1
$\frac{2\pi}{3}$	$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$.3$
$\frac{3\pi}{4}$	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	0
$\frac{5\pi}{6}$			
π	0	-1	-1



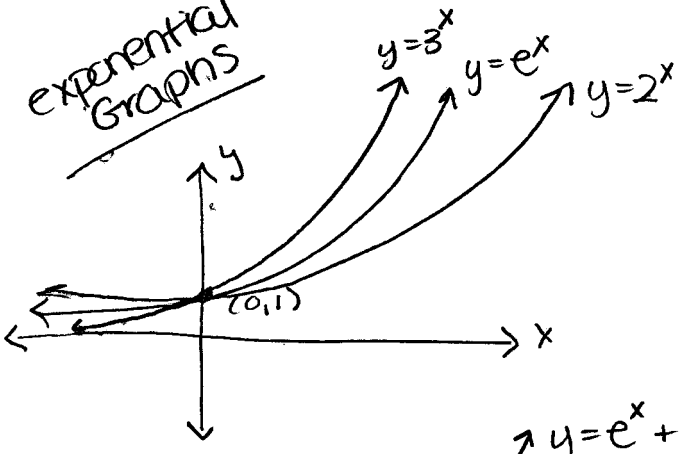
Given the graph:



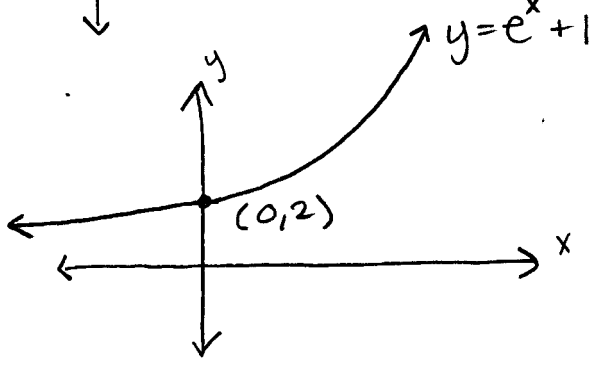
For how many values of x does $f(x)=1$?

(5)

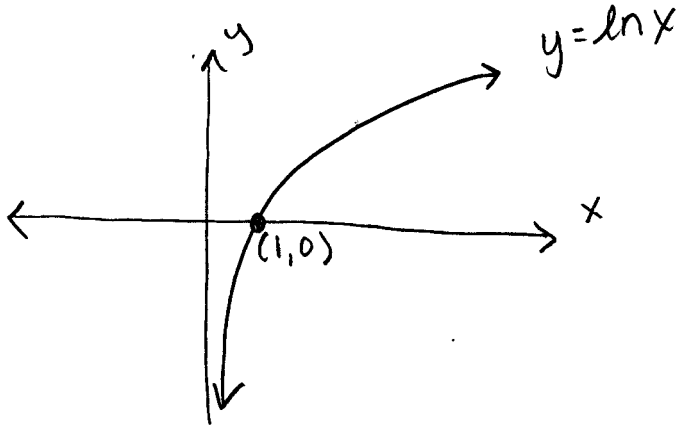
exponential Graphs



x-axis is the horizontal asymptote



← shift up by 1 unit



y-axis is the vertical asymptote

shift by 1 unit to the right →