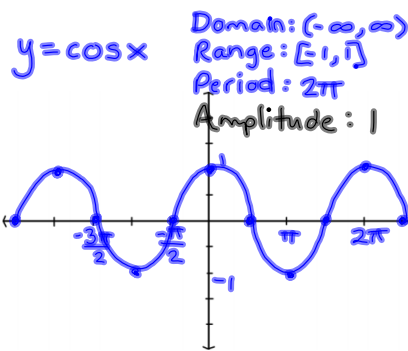
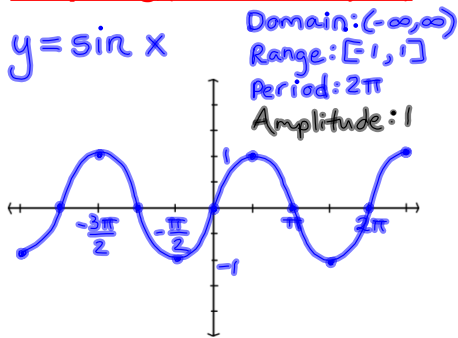


**Graphing** (5.5, 5.6 and beyond)

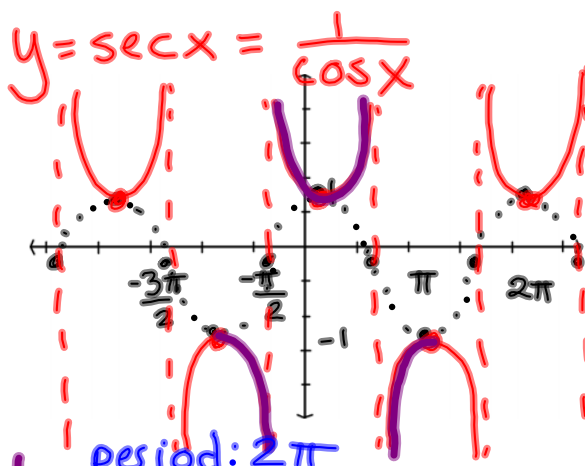
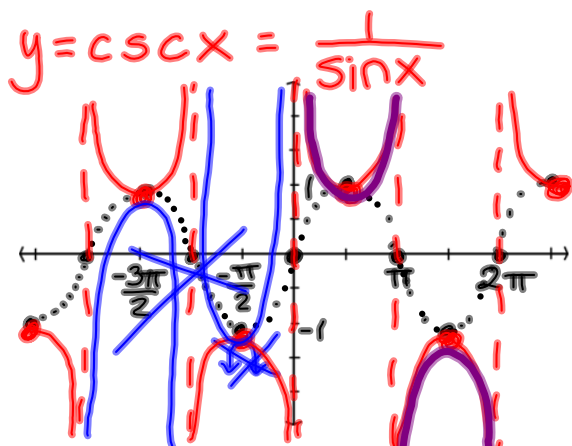


Recall:  
 The period of a function is the smallest interval over which the function repeats itself.

New term:  
Amplitude -  $\frac{\text{Max } y\text{-value} - \text{Min } y\text{-value}}{2}$

or for an unshifted sin/cos graph,  
 the max. distance from x-axis

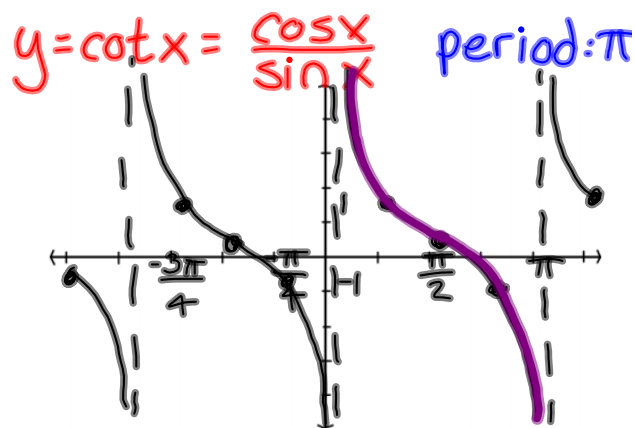
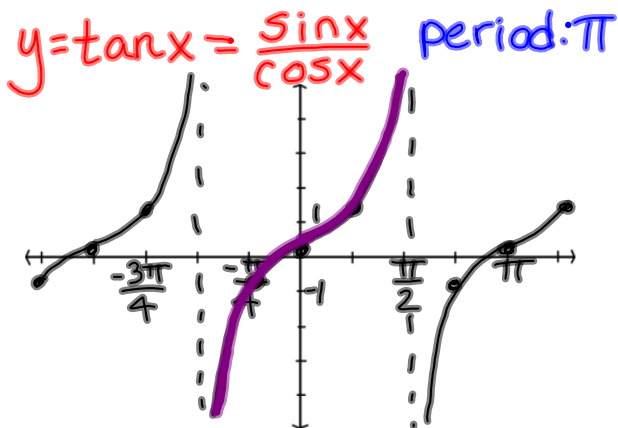
\*amplitude is always positive



"amp" of helper graphs: 1 ; period:  $2\pi$  ; range:  $(-\infty, -1] \cup [1, \infty)$

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

a vertical asymptote is a line, not part of the actual graph, which the graph approaches but never touches

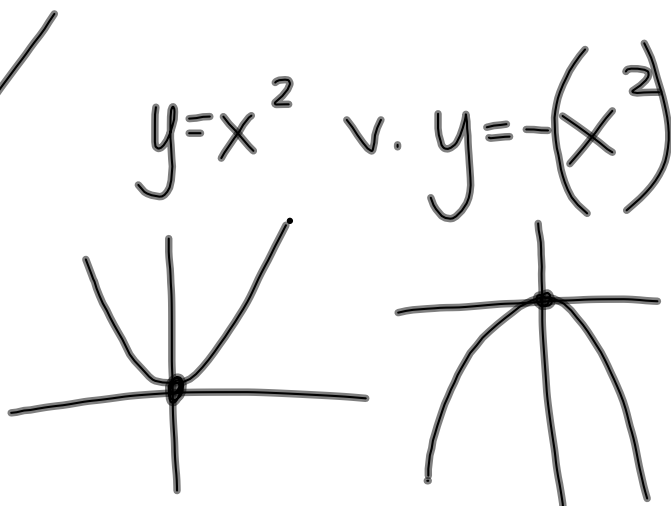
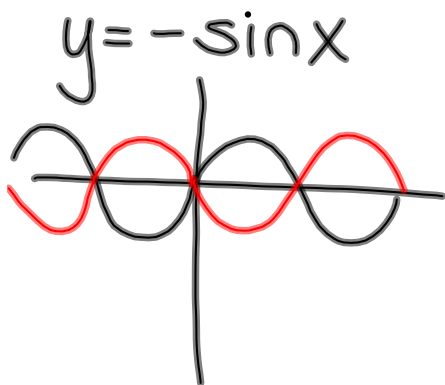


$= 0$  when  $\sin x = 0$  ( $k\pi$ 's)  
 undef. when  $\cos x = 0$  (odd  $\frac{k\pi}{2}$ 's)  
 passes through origin  
 asymptotes @ positive & negative half the period

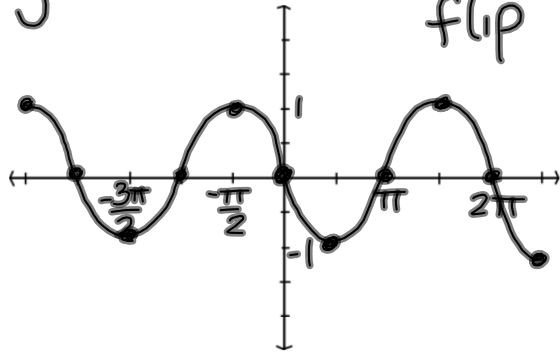
lies to right of y-axis,  
 drawn from upper left to bottom right  
 asymptotes @ zero & period

$$y = f(x) \rightsquigarrow y = a f(bx + c) + d$$

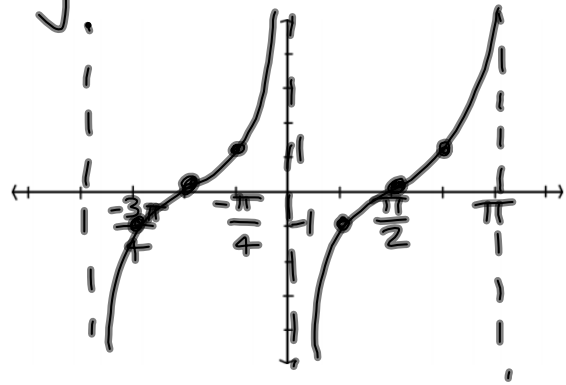
$$y = a(x - h)^2 + k$$



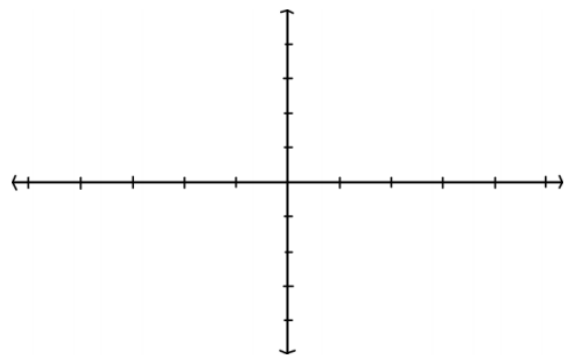
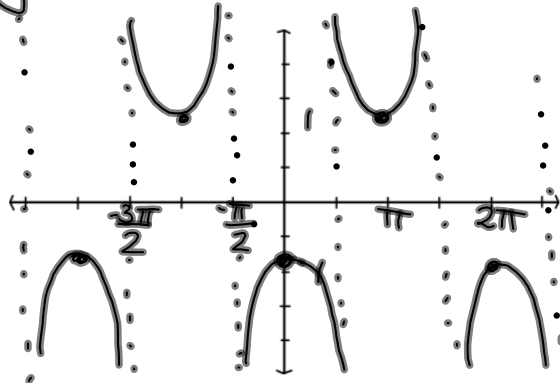
$y = -\sin x \Rightarrow$  vertical flip



$y = -\cot x$



$y = -\sec x$

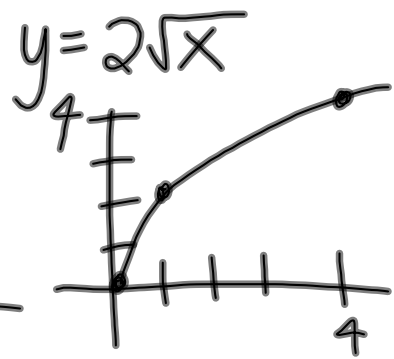
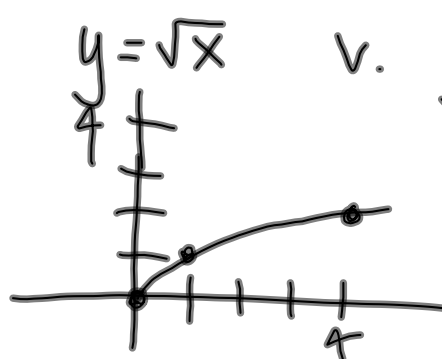


$y = a f(bx)$

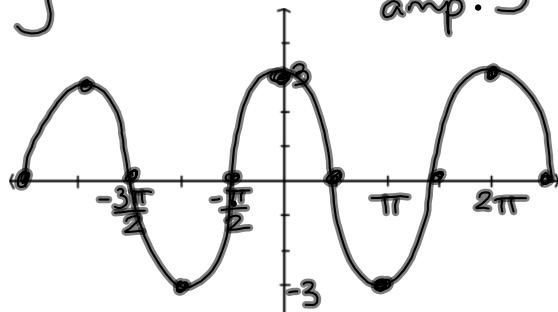
Amplitude of sin/cos

& "Amplitude" of relevant reference points for sec/csc/tan/cot

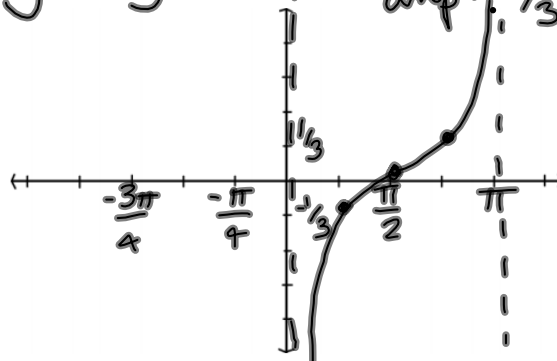
$= |a|$



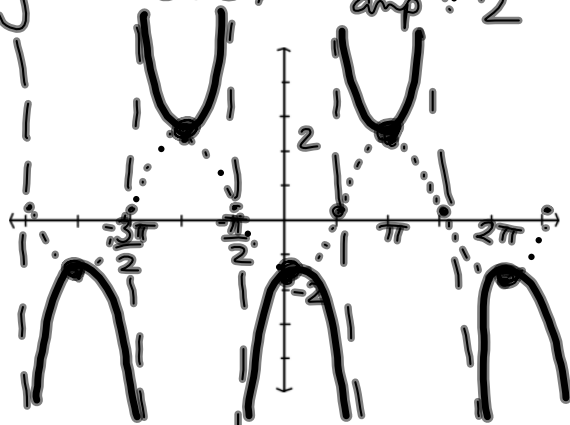
$y = 3 \cos x$  per:  $2\pi$   
amp: 3



$y = -\frac{1}{3} \cot x$  per:  $\pi$   
"amp":  $\frac{1}{3}$



$y = -2 \sec x$  per:  $2\pi$   
"amp": 2



Homework:

graphing worksheet  
problems #1-18

(handed out in class,  
also found on website  
under "Trigonometry",