CC Algebra 2/Trig Honors 11-1/11-2 Graphing Trig Functions Date May 29

Translations and Reflections

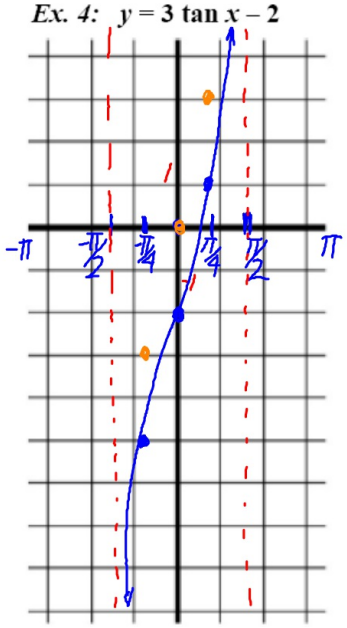
$y = a \sin b(x-h) + k$
$y = a \cos b(x-h) + k$
$y = a \tan b(x-h) + k$

h: horizontal translation (phase shift)

k: vertical translation

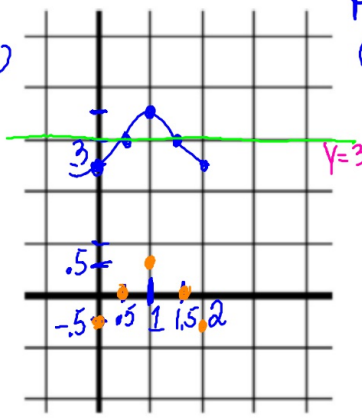
if $a < 0$: reflection across line $y = k$

Ex. 4: $y = 3 \tan x - 2$



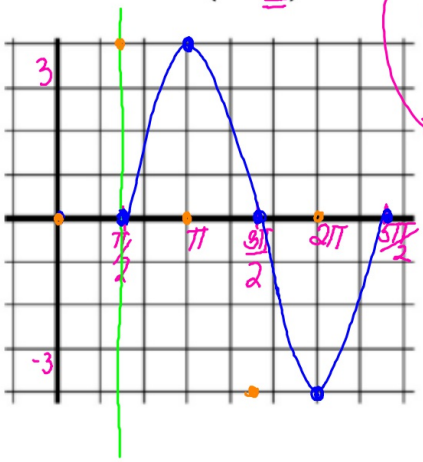
down 2
$\mp a = \mp 3$
$-\infty < y < \infty$
per $= \pi$

Ex. 5: $y = \left(\frac{-1}{2}\cos \pi x\right) + 3$



up 3
period 2
amp 1/2
reflection across y=3

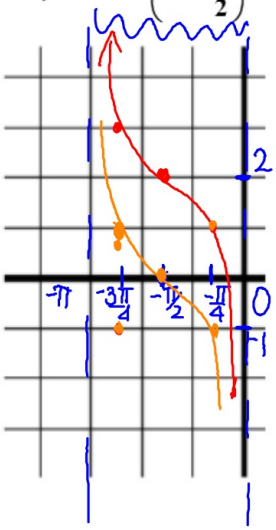
Ex. 6: $y = 4\sin\left(x - \frac{\pi}{2}\right)$



horiz. trans. $\pi/2$ (right)
amp = 4
$-4 \le y \le 4$
per $= 2\pi$
$\frac{\pi}{2} + 2\pi = \frac{5\pi}{2}$

Ex. 7: $y = -\tan\left(x + \frac{\pi}{2}\right) + 2$

h $-(-\pi/2)$



up 2
left $\pi/2$
reflection across y=2
period π