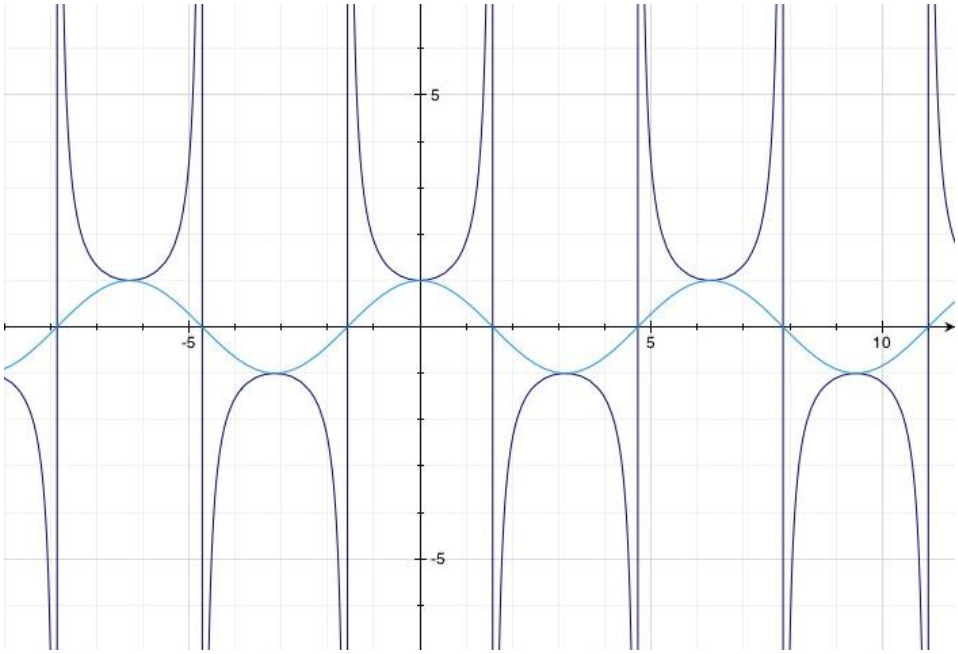
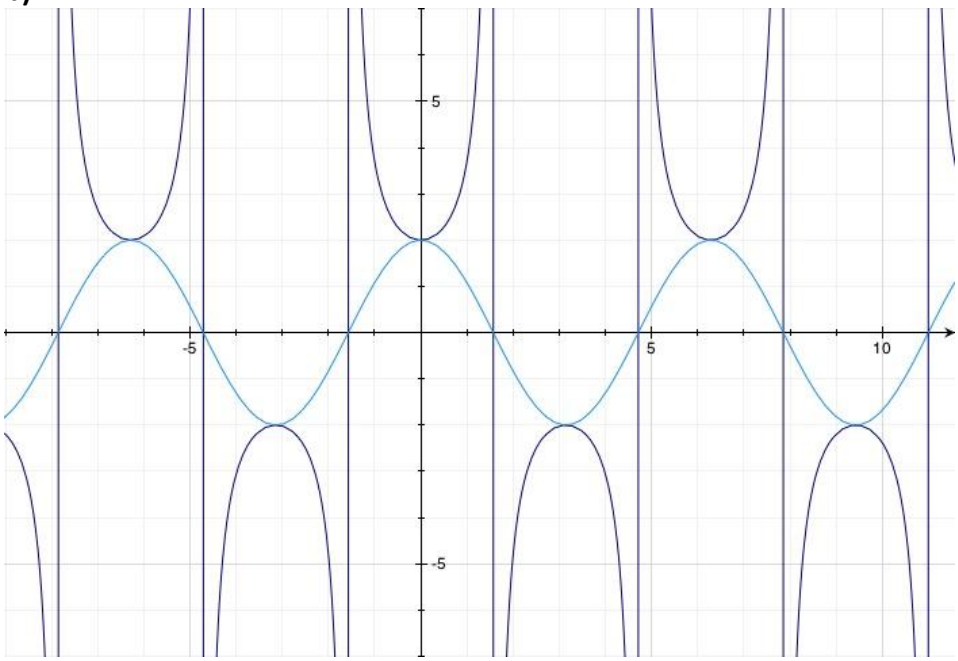
In the following, perform the graphing on some electronic gadget – not here. When you describe what you see. Words like “peak”, “valley”, and asymptote might be useful.
a) Graph sec(x) and cos(x) together. Describe how the two graphs interact.
b) Graph 2*sec(x) and 2*cos(x) together. Describe how the two graphs interact.
c) Graph sec(2x) and cos(2x) together. Describe how the two graphs interact.

a)



$y = sec(x)$ is inverse function to $y = cos(x)$. They have the same period $T = 2\pi$
Vertical asymptotes of $sec(x)$ intersect x axis in the points where $cos(x)$ intersect x axis these points are $x = \left(\frac{\pi}{2} + \pi n\right)$, where $n = 1, 2, 3, \ldots$
Function $y = sec(x)$ touches $y = cos(x)$ at extrema. These points are $y = 1$, $x = \pi n$, where $n = 1, 2, 3, \ldots$

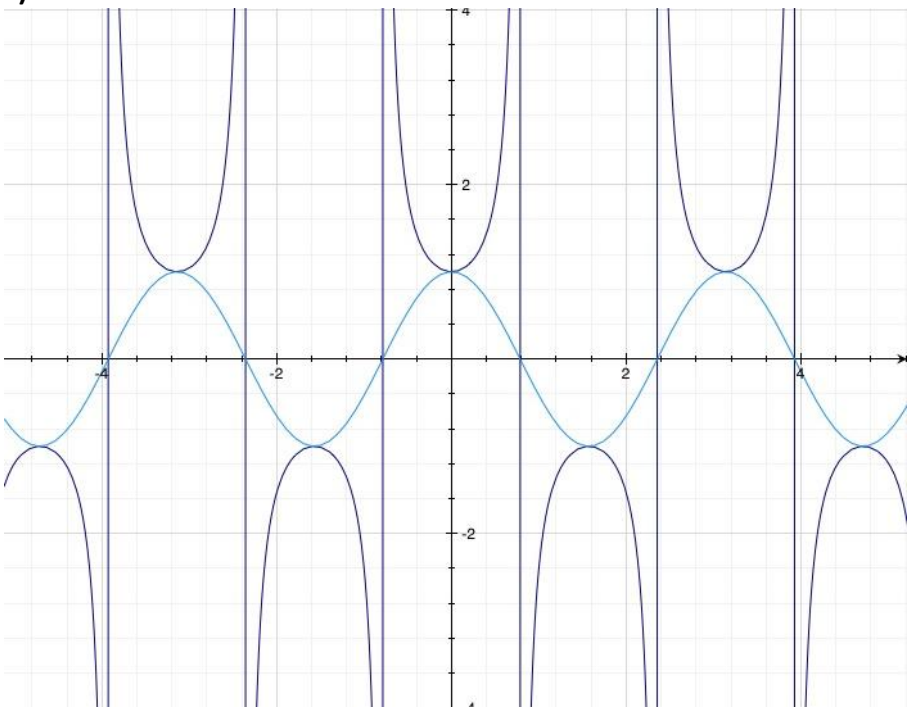
b)



$y = 2sec(x)$ is inverse function to $y = 2cos(x)$. They have the same period $T = 2\pi$

The same as in $sec(x)$ and $cos(x)$, vertical asymptotes of $sec(x)$ intersect x axis in the points where $cos(x)$ intersect x axis these points are $x = \left(\frac{\pi}{4} + \frac{\pi n}{2}\right)$, where $n = 1, 2, 3, \ldots$
Function $y = sec(x)$ touches $y = cos(x)$ at extrema. These points are $y = 2$, $x = \pi n$, where $n = 1, 2, 3, \ldots$

c)



$y = sec(2x)$ is inverse function to $y = cos(2x)$. They have the same period $T = \pi$
Vertical asymptotes of $sec(2x)$ intersect x axis in the points where $cos(2x)$ intersect x axis these points are $x = \left(\frac{\pi}{2} + \pi n\right)$, where $n = 1, 2, 3, \ldots$
Function $y = sec(2x)$ touches $y = cos(2x)$ at extrema. These points are $y = 1$, $x = \frac{\pi n}{2}$, where $n = 1, 2, 3, \ldots$