

- 15 (a) **Graphical:** Graph $Y_1 = 1 / \cos(X - \pi / 2)$ and $Y_2 = 1 / \sin(X)$ separately in $[-2\pi, 2\pi, \pi / 2]$ by $[-4, 4, 1]$.

Graph Y_1 is shown in *Figure 15a*. Graph Y_2 is shown in *Figure 15b*. The graphs are the same.

Numerical: Table $Y_1 = 1 / \cos(X - \pi / 2)$ and $Y_2 = 1 / \sin(X)$ starting at $x = 0$, incrementing by $\frac{\pi}{4}$.

The tables are the same. See *Figure 15c*.

Verbal: If the secant graph is translated $\pi/2$ units right it coincides with the cosecant graph.

$$(b) \sec\left(t - \frac{\pi}{2}\right) = \frac{1}{\cos\left(t - \frac{\pi}{2}\right)} = \frac{1}{\cos t \cos \frac{\pi}{2} + \sin t \sin \frac{\pi}{2}} = \frac{1}{\cos t(0) + \sin t(1)} = \frac{1}{\sin t} = \csc t$$

$[-2\pi, 2\pi, \pi/2]$ by $[-4, 4, 1]$

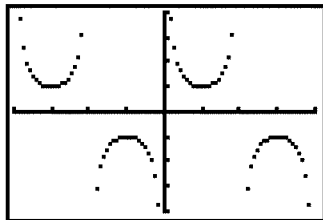


Figure 15a

$[-2\pi, 2\pi, \pi/2]$ by $[-4, 4, 1]$

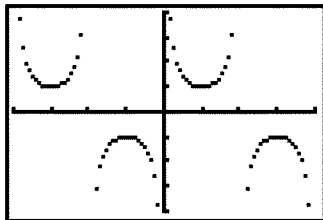


Figure 15b

X	Y1	Y2
0	ERROR	ERROR
.7854	1.4142	1.4142
1.5708	1	1
2.3562	1.4142	1.4142
3.1416	ERROR	ERROR
3.927	-1.414	-1.414
4.7124	-1	-1

Y1 = 1/cos(X - pi/2)

Figure 15c