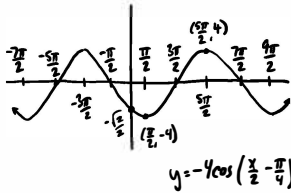
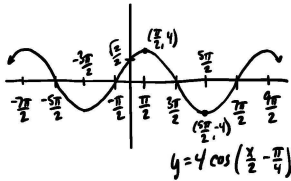
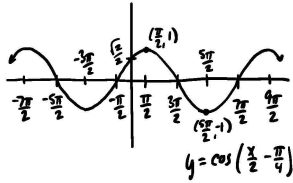
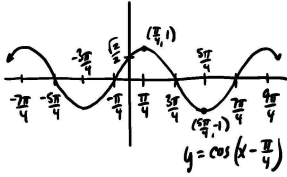
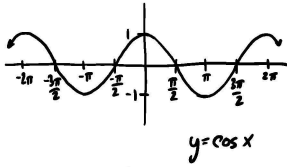
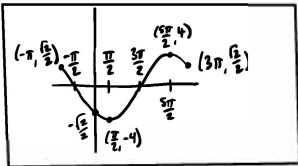


3a) $y = -4\cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$ on $[-\pi, 3\pi]$



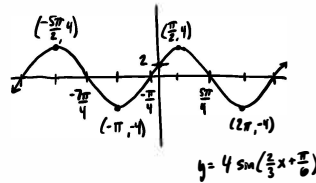
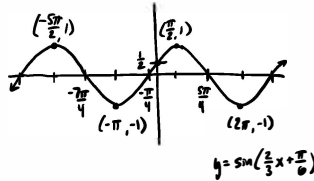
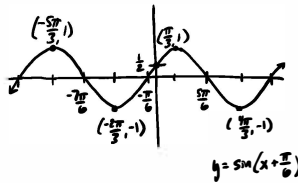
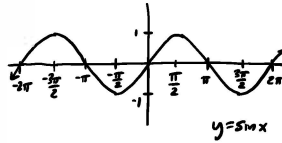
At $x = \pi$,
 $y = -4\cos\left(\frac{\pi}{2} - \frac{\pi}{4}\right) = -4\left(\frac{\sqrt{2}}{2}\right) = 2\sqrt{2}$

At $x = 3\pi$,
 $y = -4\cos\left(\frac{3\pi}{2} - \frac{\pi}{4}\right) = -4\left(-\frac{\sqrt{2}}{2}\right) = 2\sqrt{2}$



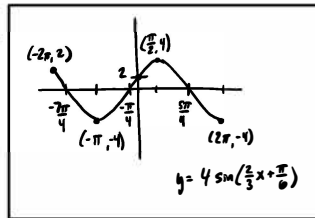
$y = -4\cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$
 on $[-\pi, 3\pi]$

3b) $y = 4\sin\left(\frac{2}{3}x + \frac{\pi}{6}\right)$ from -2π to 2π

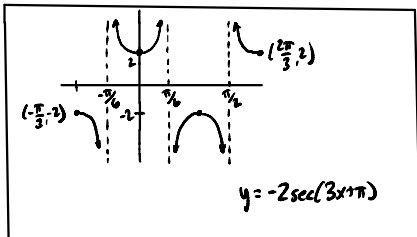
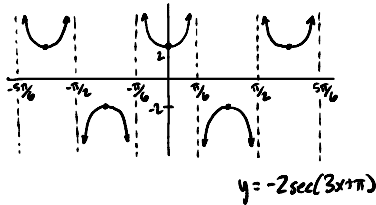
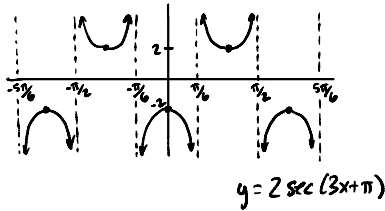
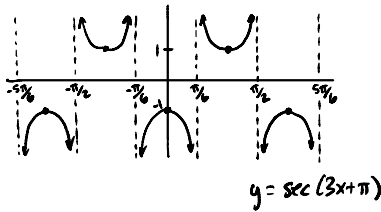
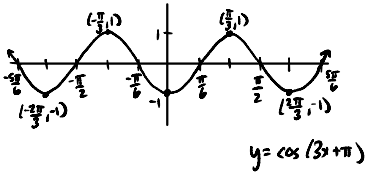
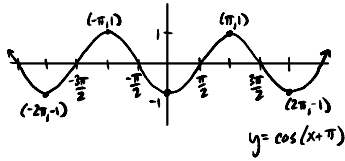
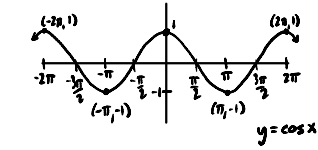


At $x = -2\pi$,
 $y = 4\sin\left(-\frac{4\pi}{3} + \frac{\pi}{6}\right) = 4\sin\left(-\frac{7\pi}{6}\right) = 2$

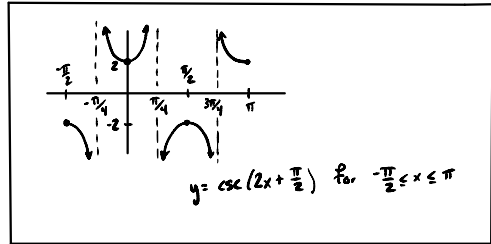
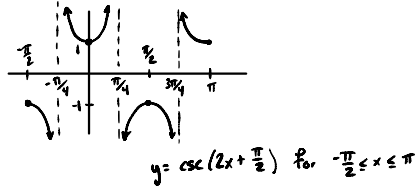
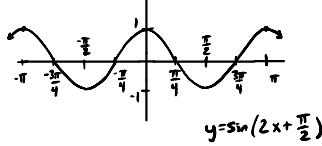
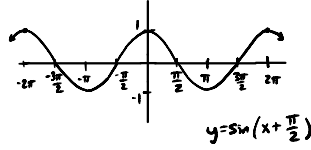
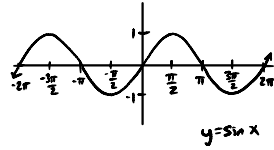
At $x = 2\pi$,
 $y = 4\sin\left(\frac{4\pi}{3} + \frac{\pi}{6}\right) = 4\sin\left(\frac{3\pi}{2}\right) = -4$



③ $y = -2\sec(3x + \pi)$ on $[-\frac{\pi}{3}, \frac{2\pi}{3}]$



③ $y = 2\csc(2x + \frac{\pi}{2})$ for $-\frac{\pi}{2} \leq x \leq \pi$



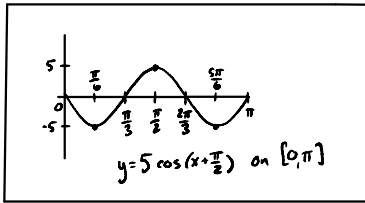
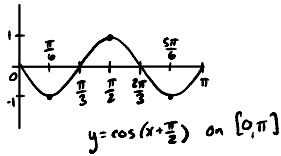
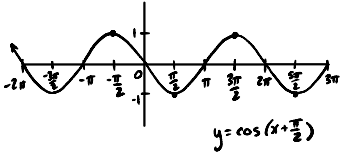
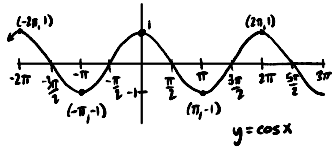
At $x = -\frac{\pi}{3}$

$y = -2\sec(0) = \frac{-2}{\cos(0)} = -2$

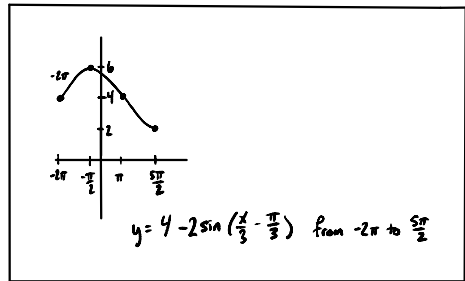
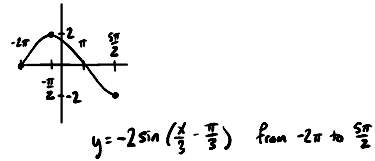
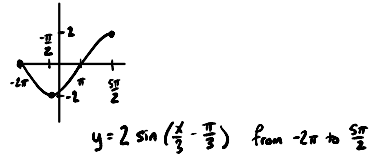
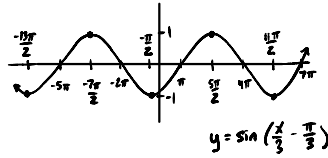
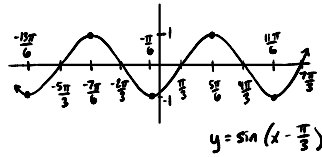
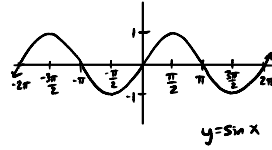
At $x = \frac{2\pi}{3}$

$y = -2\sec(3\pi) = \frac{-2}{\cos(3\pi)} = 2$

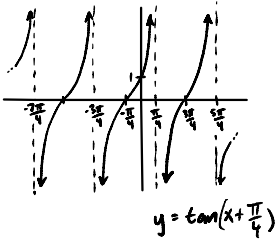
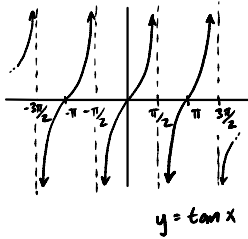
3e) $y = 5 \cos(3x + \frac{\pi}{2})$ on $[0, \pi]$



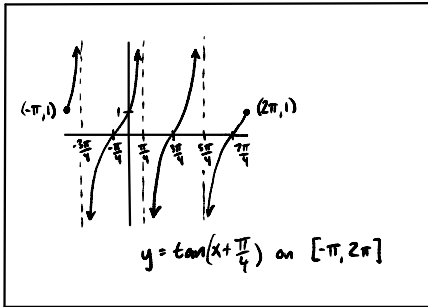
3f) $y = 4 - 2 \sin(\frac{x}{3} - \frac{\pi}{3})$ from -2π to $\frac{5\pi}{2}$



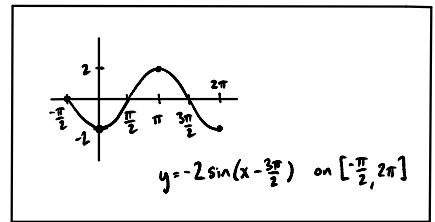
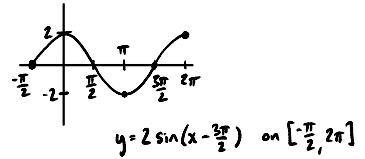
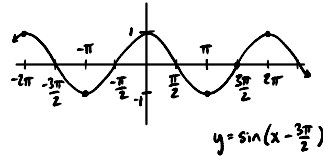
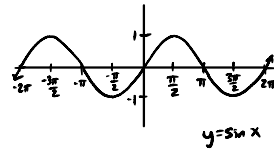
3g) $y = \tan(x + \frac{\pi}{4})$ on $[-\pi, 2\pi]$



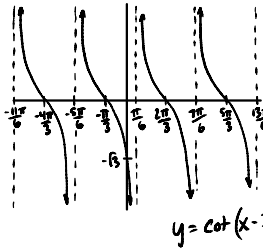
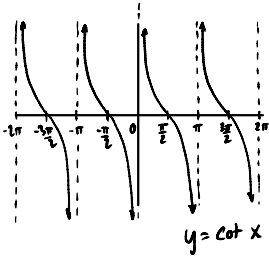
At $x = -\pi$ $y = \tan(-\frac{3\pi}{4}) = 1$ | At $x = 2\pi$ $y = \tan(\frac{9\pi}{4}) = 1$



3h) $y = -2 \sin(x - \frac{3\pi}{2})$ on $[-\frac{\pi}{2}, 2\pi]$

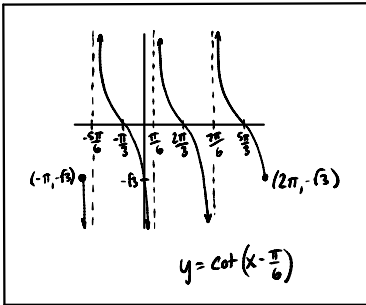


3i) $y = \cot(x - \frac{\pi}{6})$ from $-\pi$ to 2π

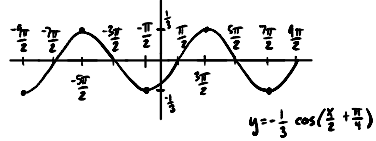
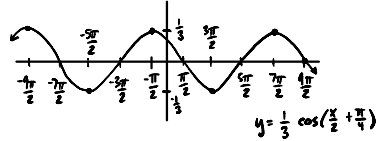
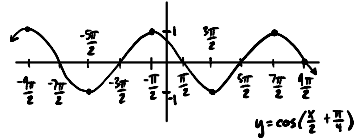
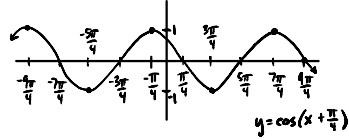
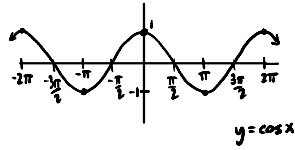


Note $\cot(-\frac{\pi}{6}) = \frac{\sqrt{3}/2}{-1/2} = -\sqrt{3}$

At $x = -\pi$, $y = \cot(-\frac{7\pi}{6}) = \frac{\sqrt{3}/2}{-1/2} = -\sqrt{3}$ | At $x = 2\pi$, $y = \cot(\frac{11\pi}{6}) = \frac{\sqrt{3}/2}{-1/2} = -\sqrt{3}$

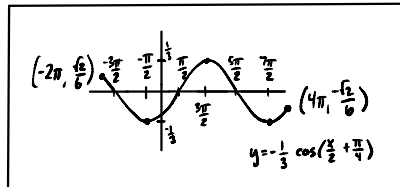


3j) $y = -\frac{1}{3} \cos(\frac{x}{2} + \frac{\pi}{4})$ on $[-2\pi, 4\pi]$

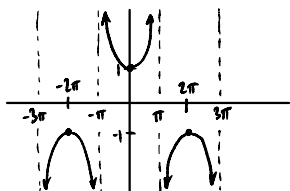
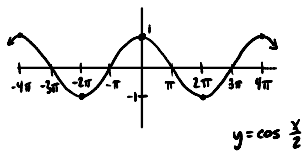
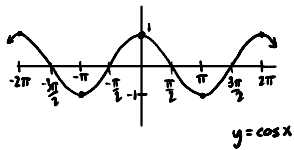


At $x = -2\pi$
 $y = -\frac{1}{3} \cos(-\frac{3\pi}{4}) = (-\frac{1}{3}) \cdot (-\frac{\sqrt{2}}{2}) = \frac{\sqrt{2}}{6}$

At $x = 4\pi$
 $y = -\frac{1}{3} \cos(\frac{9\pi}{4}) = (-\frac{1}{3}) \cdot (\frac{\sqrt{2}}{2}) = -\frac{\sqrt{2}}{6}$



3k $y = -\sec \frac{x}{2}$ for $-3\pi < x < 3\pi$



$y = \sec \frac{x}{2}$ for $-3\pi < x < 3\pi$