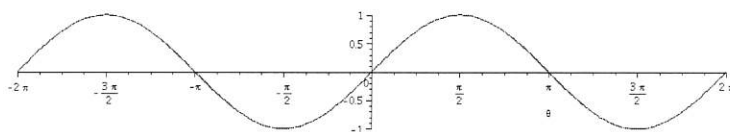


You may use a scientific calculator, but not a graphing calculator or the internet. You may work in groups, but each person should turn in their own worksheet.

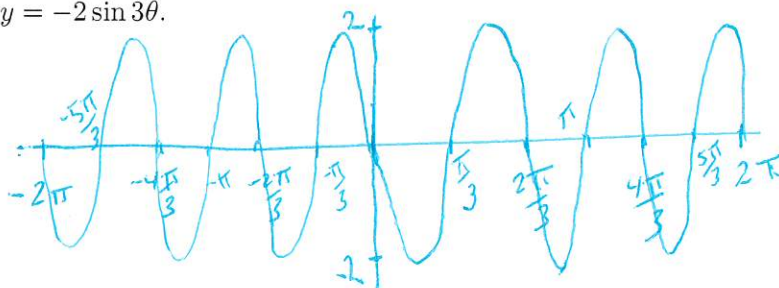
Name:

Below is the graph of $y = \sin \theta$, for $\theta \in [-2\pi, 2\pi]$.

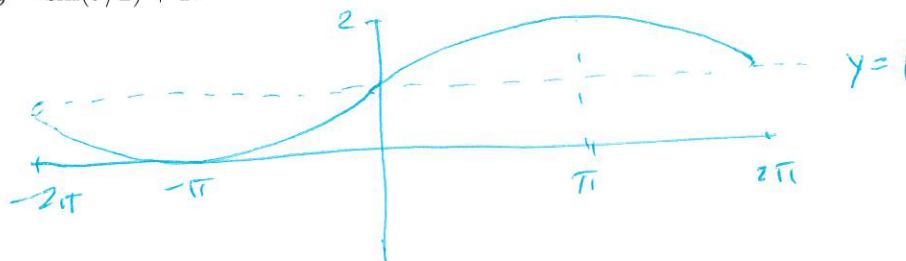


Graph the following functions over the same domain. (5 points each.)

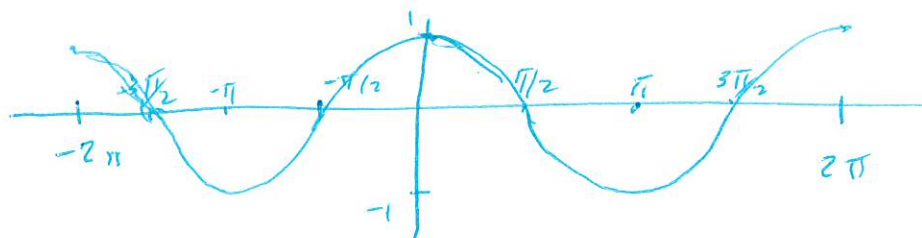
1. $y = -2 \sin 3\theta$.



2. $y = \sin(\theta/2) + 1$.

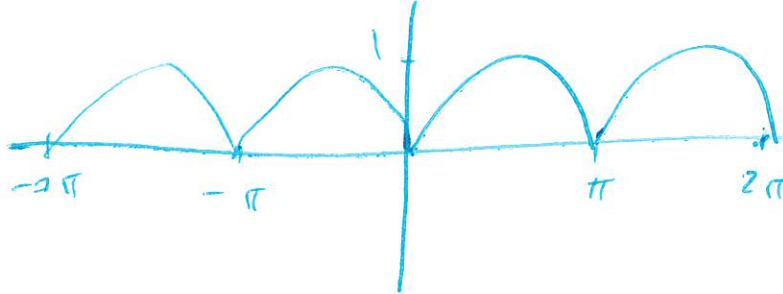


3. $y = \sin(\theta + \pi/2)$. What function is this? $\cos(\theta)$

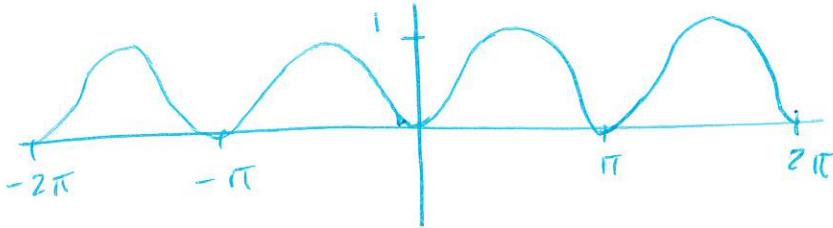


Do an internet search for
 → "diode bridge rectifier"

4. $y = |\sin \theta|$. (This is the first step in converting AC to DC.)

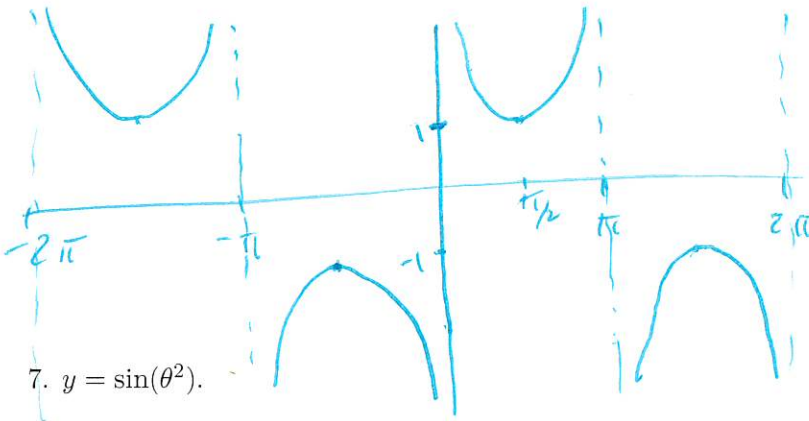


5. $y = \sin^2 \theta = (\sin \theta)^2 = \frac{1 - \cos(2\theta)}{2}$

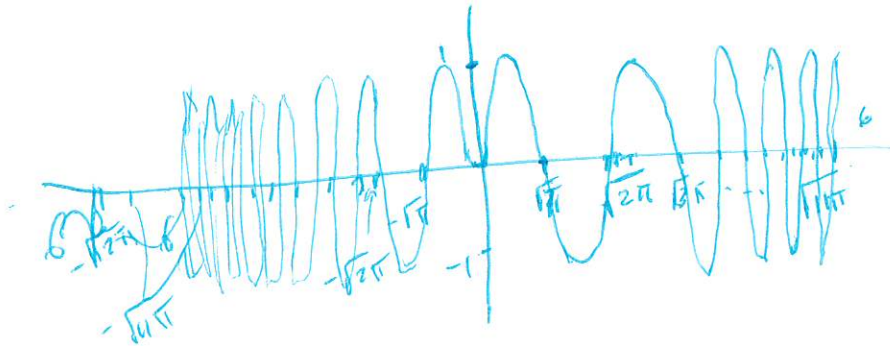


6. $y = \frac{1}{\sin \theta}$. What function is this?

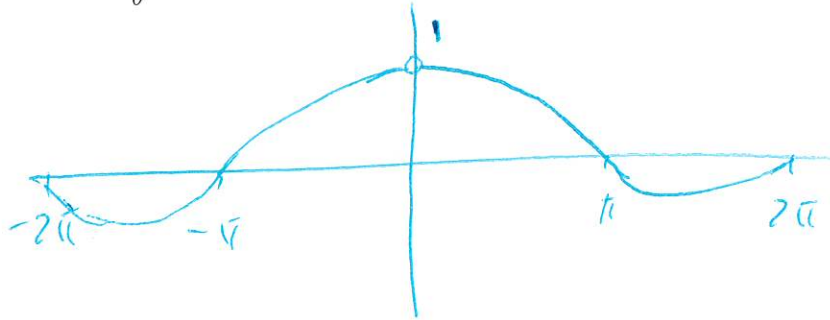
$\csc(\theta)$



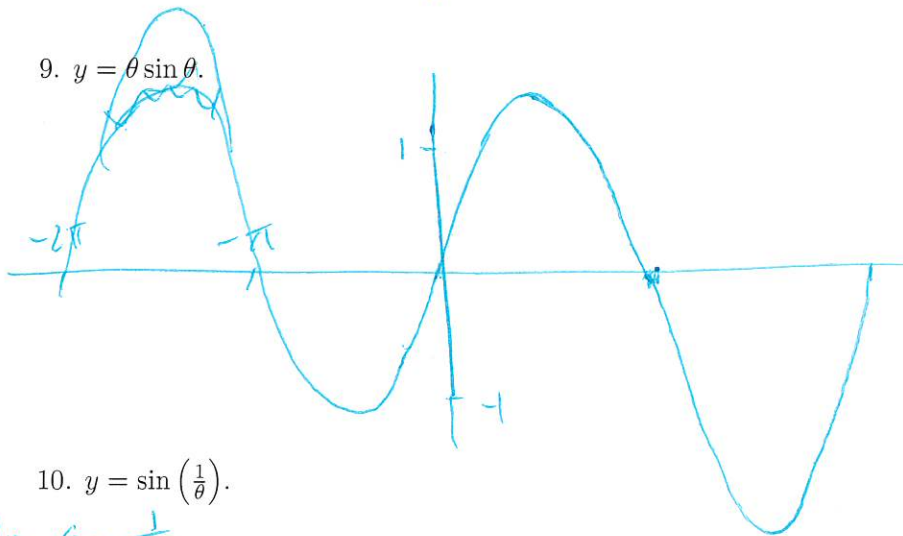
7. $y = \sin(\theta^2)$.



8. $y = \frac{\sin \theta}{\theta}$. What happens near $\theta = 0$?

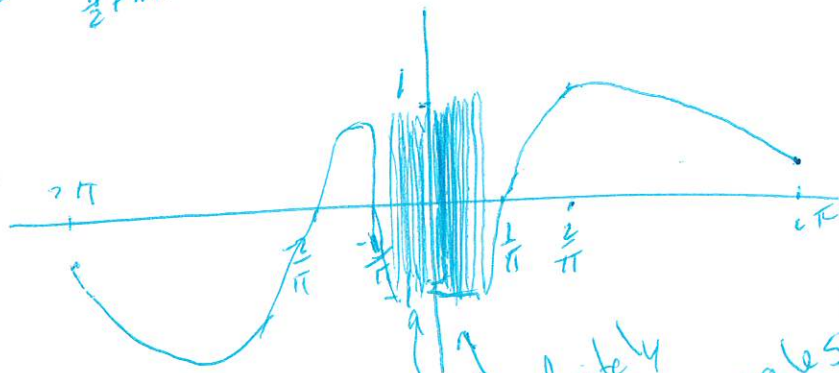


9. $y = \theta \sin \theta$.



10. $y = \sin\left(\frac{1}{\theta}\right)$.

Consider $\theta = \frac{1}{n\pi}$
 $\theta = \frac{1}{\frac{1}{2} + n\pi}$



infinitely many wiggles!
 Not defined at zero.