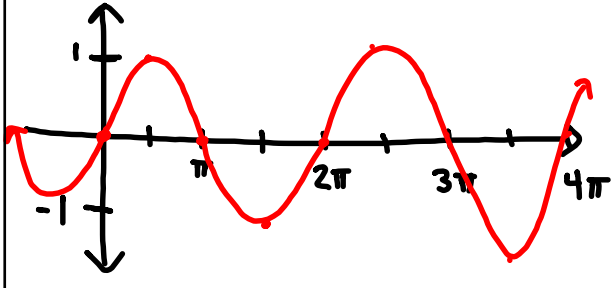
$y = \sin x$

$y = \underline{a} \sin(bx - c) + \underline{d}$

amplitude Vertical shift

period $= 2\pi$

$(0, 0)\left(\frac{\pi}{2}, 1\right)(\pi, 0)\left(\frac{3\pi}{2}, -1\right)(2\pi, 0)$



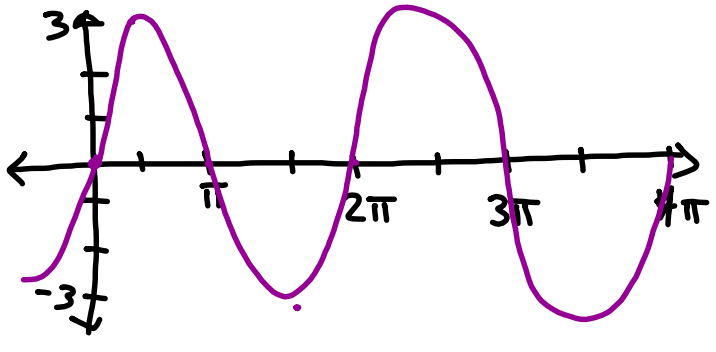
#9

$y = 3 \sin x$

amplitude: 3

$(0,0)\left(\frac{\pi}{2}, 1\right)(\pi, 0)\left(\frac{3\pi}{2}, -1\right)(2\pi, 0)$

$(0,0)\left(\frac{\pi}{2}, 3\right)(\pi, 0)\left(\frac{3\pi}{2}, -3\right)(2\pi, 0)$



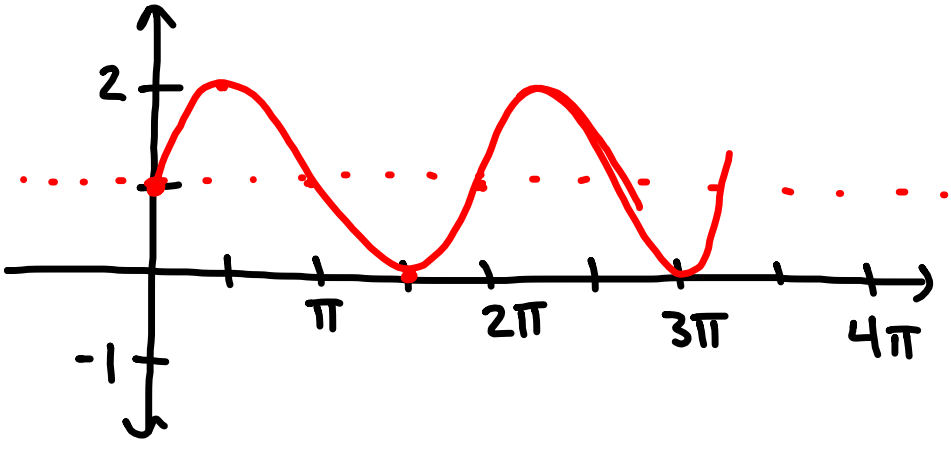
#4 $y = \sin\theta + 1$

$y = 1 + \sin\theta$

vertical shift up 1

$(0,0)\ (\frac{\pi}{2},1)\ (\pi,0)\ (\frac{3\pi}{2},-1)\ (2\pi,0)$

$(0,1)\ (\frac{\pi}{2},2)\ (\pi,1)\ (\frac{3\pi}{2},0)\ (2\pi,1)$



$y = -2 + 2\sin\theta$

amplitude: 2

vertical: down 2

$(0,0)\ \left(\frac{\pi}{2},1\right)\ (\pi,0)\ \left(\frac{3\pi}{2},-1\right)\ (2\pi,0)$

$(0,0)\ \left(\frac{\pi}{2},2\right)\ (\pi,0)\ \left(\frac{3\pi}{2},-2\right)\ (2\pi,0)$

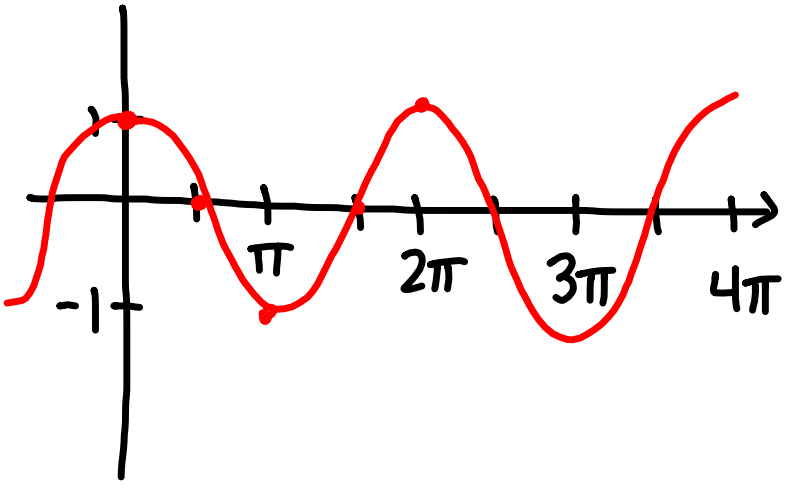
$(0,-2)\ \left(\frac{\pi}{2},0\right)\ (\pi,-2)\ \left(\frac{3\pi}{2},0\right)\ (2\pi,-2)$

$y = \cos x$

$y = a\cos(bx - c) + d$

period: 2π

$(0, 1)\left(\frac{\pi}{2}, 0\right)(\pi, -1)\left(\frac{3\pi}{2}, 0\right)(2\pi, 1)$



#5 $y = 4\cos\theta + 1$ $\quad y = 1 + 4\cos\theta$

amplitude: 4

vertical: up 1

$(0,1)\ \left(\frac{\pi}{2},0\right)\ (\pi,-1)\ \left(\frac{3\pi}{2},0\right)\ (2\pi,1)$

$(0,4)\ \left(\frac{\pi}{2},0\right)\ (\pi,-4)\ \left(\frac{3\pi}{2},0\right)\ (2\pi,4)$

$(0,5)\ \left(\frac{\pi}{2},1\right)\ (\pi,-3)\ \left(\frac{3\pi}{2},1\right)\ (2\pi,5)$