$\underline{\sin(ax+b)}$

let $y = \sin(ax+b)$

$y_1 = a\cos(ax+b) = a\sin\left[\dfrac{\pi}{2} + ax+b\right]$

$y_2 = a^2\cos\left[\dfrac{\pi}{2} + ax+b\right] = a^2\sin\left[\dfrac{2\pi}{2} + ax+b\right]$

$y_3 = a^3\cos\left[\pi + ax+b\right] = a^3\sin\left[\dfrac{3\pi}{2} + ax+b\right]$

$y_n = a^n\sin\left[ax+b + n\dfrac{\pi}{2}\right]$

i.e., $D^n\left[\sin(ax+b)\right] = a^n\sin\left[ax+b+\dfrac{n\pi}{2}\right]$

if $a=1, b=0$ then $y = \sin x$ & $y_n = \sin\left[x + \dfrac{n\pi}{2}\right]$