

Unit 4 Lesson 7 PW #1

Part I

① $y = 3\sin x + 2\cos x$

$A = \frac{3.61 - (-3.61)}{2} = 3.61$ $NP \Rightarrow -5.9 \text{ to } 5.7$

$PS = \frac{c}{B}$

$6.28 = \frac{2\pi}{B}$ $B = 1$

$-5.9 = \frac{c}{1}$

$VS = \frac{3.61 + (-3.61)}{2} = 0$

$-5.9 = c$

$y = 3.61 \sin(x + 5.9)$

② $y = 2\sin x - 3\cos x$

$A = \frac{3.61 - (-3.61)}{2} = 3.61$ $NP \Rightarrow -2.16 \text{ to } 4.12$

$PS = \frac{c}{B}$ $.983 = \frac{c}{1}$

$B = 1$

$.983 = c$

$y = 3.61 \sin(x - .983)$

③ NOT SINUSOIDAL

④ $y = 3\sin 5x - 5\cos 5x$

$A = \frac{5.83 - (-5.83)}{2} = 5.83$

$NP \Rightarrow 0.21 \text{ to } 1.46 = 1.25$

$PS = \frac{c}{B}$ $.21 = \frac{c}{5.03}$

$1.25 = \frac{6.28}{B}$ $B = 5.03$

$c = 1.06$

$y = 5.83 \sin(5.03x - 1.06)$

$$\textcircled{5} \quad y = 4\sin x - 2\cos x$$

$$A = \frac{4.47 - (-4.47)}{2} = 4.47 \quad NP \Rightarrow \underbrace{-2.68 \text{ to } 3.61}_{\approx 6.28}$$

$$PS = C/B$$

$$.46 = \frac{C}{1}$$

$$B \approx 1$$

$$C = .46$$

$$y = 4.47 \sin(x - .46)$$

$\textcircled{6}$ NOT SINUSOIDAL

$$\textcircled{7} \quad y = 2\sin(3x+1) - 5\cos(3x-2)$$

$$A = \frac{5.12 - (-5.12)}{2} = 5.12 \quad NP \Rightarrow \underbrace{.276 \text{ to } 2.37}_{2.09}$$

$$PS = C/B$$

$$2.09 = \frac{6.28}{B}$$

$$-.772 = \frac{C}{3.01}$$

$$B = 3.01$$

$$C = -2.32$$

$$y = 5.12 \sin(3.01x + 2.32)$$

$$\textcircled{8} \quad y = 3\sin(2x - 0.5) + \cos(2x + 1)$$

$$A = \frac{2.004 - (-2.004)}{2} = 2.004 \quad NP \Rightarrow \underbrace{-1.338 \text{ to } 1.803}_{3.14}$$

$$PS = C/B$$

$$0.23 = \frac{C}{2}$$

$$.46 = C$$

$$3.14 = \frac{6.28}{B}$$

$$B = 2$$

$$y = 2\sin(2x - .46)$$

$$(9) \quad y = \sin(3x-1) + 3\cos(3x+2)$$

$$A = \frac{3.02 - (-3.02)}{2} = 3.02 \quad NP \Rightarrow \underbrace{.79 \text{ to } 2.89}_{2.1} \quad 2.1 = \frac{2\pi}{B}$$

$$B = 2.99$$

$$PS = C/B$$

$$.79 = C/2.99$$

$$2.36 = C$$

$$y = 3.02 \sin(2.99x - 2.36)$$

(10) NOT SINUSOIDAL

(11) NOT SINUSOIDAL

$$(12) \quad y = 2\sin(3x-2) + 3\cos(3x+4)$$

$$A = \frac{4.04 - (-4.04)}{2} = 4.04 \quad NP \Rightarrow \underbrace{.40 \text{ to } 2.50}_{2.1} \quad B = 2.99$$

(see #9)

$$PS = C/B$$

$$.4 = C/2.99$$

$$1.206 = C$$

$$y = 4.04 \sin(2.99x - 1.206)$$