Sec 4.5 Write an Equation form a trig Function

Name: Key Per:

$y = A\cos B(\theta - h) + k$ (horizontal/Phase shift; vertical shift) or $y = A\sin B(\theta - h) + k$

C D

1. a. Parent Function: cosθ

b. Period: 3π

"b" = $2/3$

c. Amplitude: 5

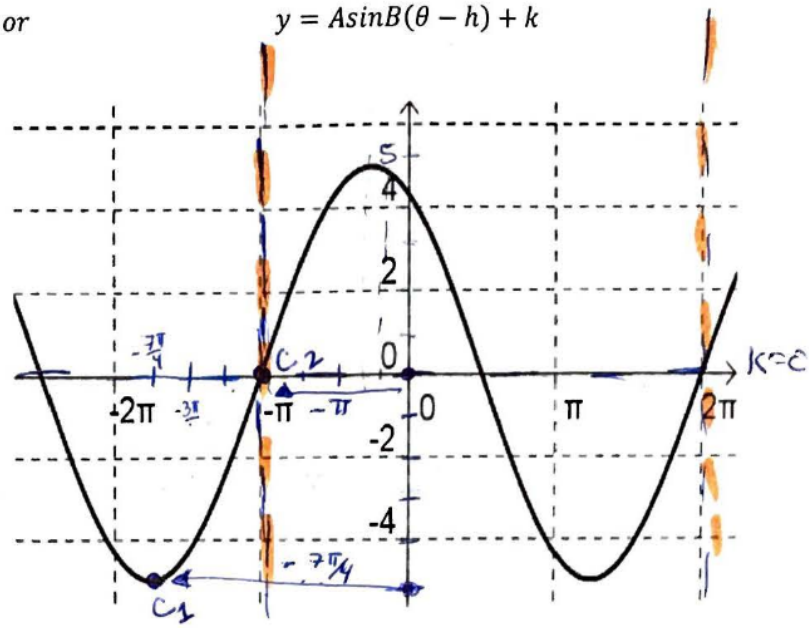
max: 5 min: -5

d. Phase shift: $-7\pi/4$ / $-\pi$

e. Vertical shift: 0

Equation C_1 = $-5\cos\frac{2}{3}(x + 7\pi/4)$

Equation C_2 = $5\sin\frac{2}{3}(x + \pi)$



Period = $2\pi \div 1 = 3\pi$

$P = \frac{2\pi}{b} = \frac{3\pi}{1}$

$\frac{3\pi b}{3\pi} = \frac{2\pi}{3\pi}$

$b = 2/3$

2. a. Parent Function: cosθ

b. Period: 2π

"b" = 1

c. Amplitude: 5

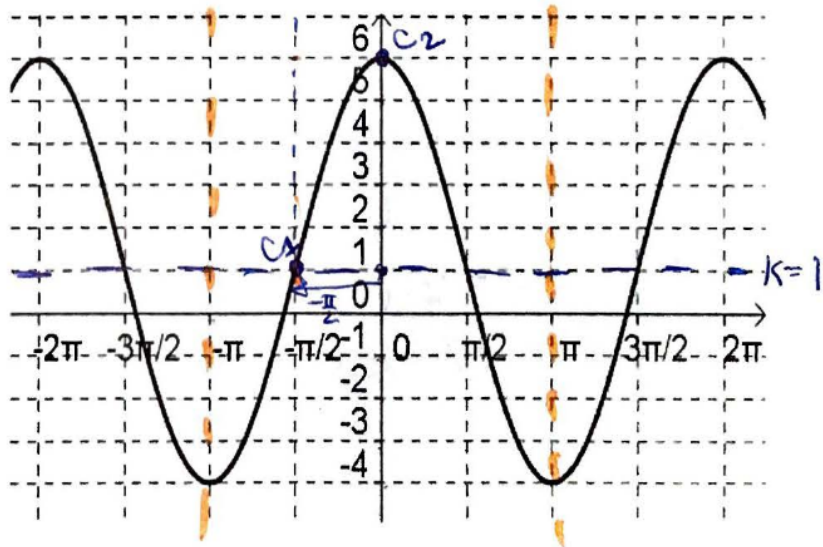
max: 6 min: -4

d. Phase shift: $\frac{-\pi}{2}$ / 0

e. Vertical shift: 1

Equation C_1 = $5\sin(x + \frac{\pi}{2}) + 1$

Equation C_2 = $5\cos x + 1$



Period = $\pi \div \pi = 2\pi$

$\frac{2\pi}{b} = \frac{2\pi}{1}$

$2\pi b = 2\pi$

$b = 1$

3. a. Parent Function: Sinθ

b. Period: π/2

"b" = 4

c. Amplitude: 6

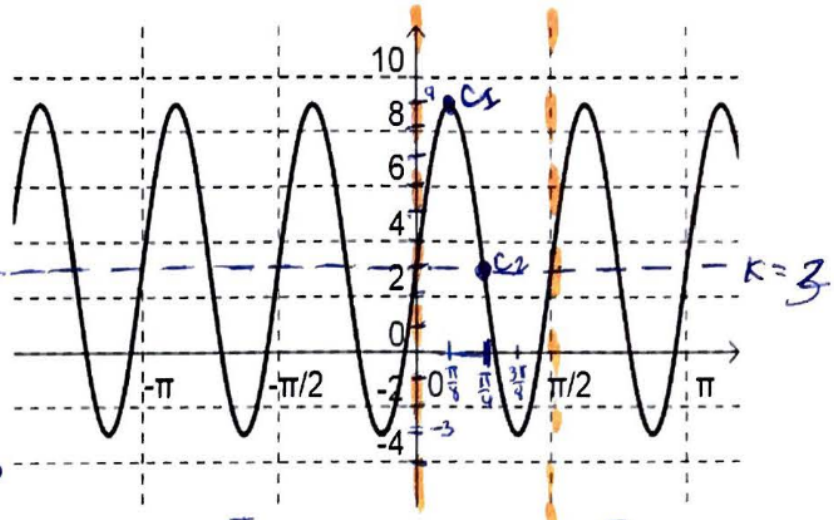
max: 9 min: -3

d. Phase shift: +π/8 / π/4

e. Vertical shift: 3

Equation C_1 = cos4(x − π/8) + 3

Equation C_2 = sin4(x − π/4) + 3



Inc = $\frac{\pi}{2} \div 4 = \frac{\pi}{2} \cdot \frac{1}{4} = \frac{\pi}{8}$

Period = $\frac{\pi}{2}$

$\frac{2\pi}{b} = \frac{\pi}{2}$

$4\pi = b\pi$

$4 = b$

4. a. Parent Function: Sinθ

b. Period: 2π

"b" = 1

c. Amplitude: ½

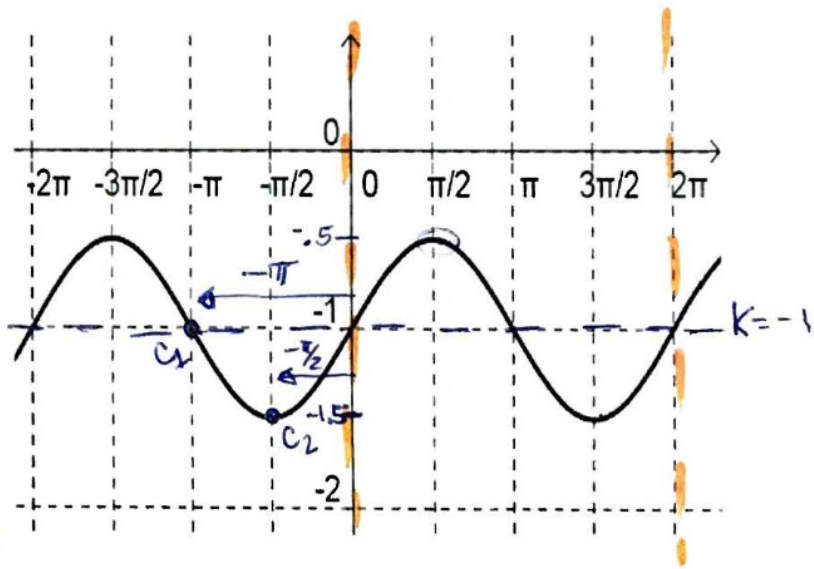
max: -.5 min: -1.5

d. Phase shift: −π / −π/2

e. Vertical shift: −1

Equation C_1 = −½ sin(x + π) − 1

Equation C_2 = −½ cos(x + π/2) − 1



5. Explain the difference between cycle and period of a periodic function.

The cycle is "the object" the completion of 1 pattern and the period is the length of 1 cycle.