

Name: Key

Hour: _____

Date: _____

Writing Equations of Sine/Cosine Functions Notes

- Equation of the Sine Function: $y = a \sin b\theta$
- Equation of the Cosine Function: $y = a \cos b\theta$
- In these problems the value of a and the kind of function will be given. You will need to calculate the value of b .
- Finding "b": $b = \frac{2\pi}{P}$

$$\frac{bP}{P} = \frac{2\pi}{P}$$

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

Write a periodic function from the given information.

- 1) Positive sine function with amplitude 3 and a period of 2.

$$y = a \sin b\theta \quad a = 3 \quad b = \frac{2\pi}{P} = \frac{2\pi}{2} = \pi$$

$$\boxed{y = 3 \sin \pi\theta}$$

- 2) Negative cosine function with amplitude of 5 and a period of 4π .

$$y = -a \cos b\theta \quad a = 5 \quad b = \frac{2\pi}{4\pi} = \frac{1}{2}$$

$$\boxed{y = -5 \cos \frac{1}{2}\theta}$$

- 3) Positive cosine function with amplitude of 0.5 and a period of $\frac{\pi}{2}$.

$$y = a \cos b\theta \quad a = 0.5 \quad b = \frac{2\pi}{\frac{\pi}{2}} = 4$$

$$\boxed{y = 0.5 \cos 4\theta}$$

- 4) Negative sine function with amplitude of 7 and a period of $\frac{2\pi}{3}$.

$$y = -a \sin b\theta \quad a = 7 \quad b = \frac{2\pi}{\frac{2\pi}{3}} = 3$$

$$\boxed{y = -7 \sin 3\theta}$$