

Homework 7.6: Periodic Data

Name: _____

Math 3

For Exercises 1–3, choose the correct letter.

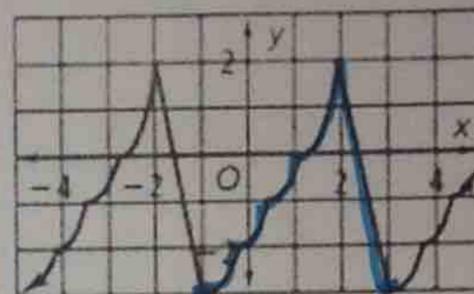
1. Which pair of coordinates names one complete cycle of the periodic function?

(A) $(-5, -3)$ to $(-2, 2)$

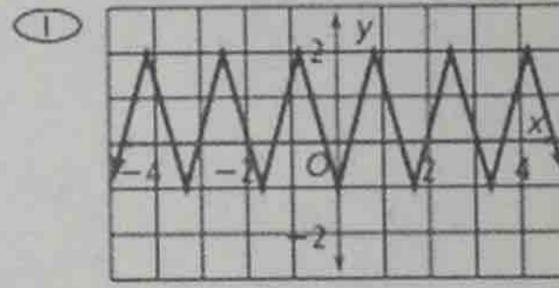
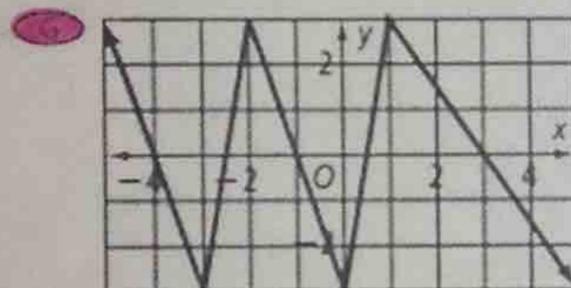
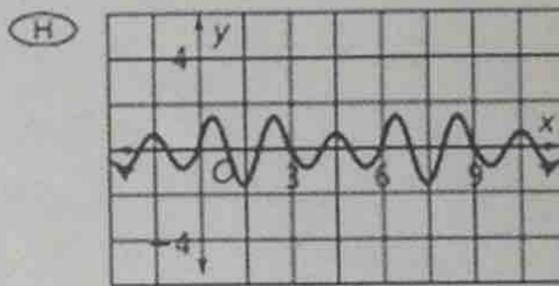
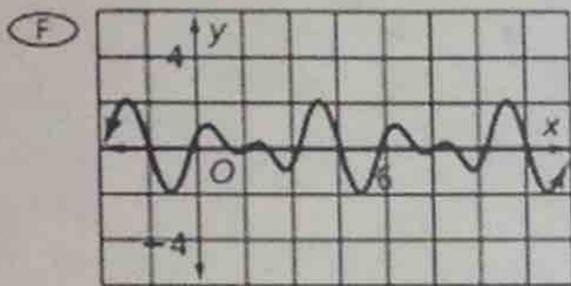
(C) $(-2, 2)$ to $(-1, -3)$

(B) $(-5, -3)$ to $(5, 0)$

(D) $(-1, -3)$ to $(3, -3)$



2. Which graph is NOT the graph of a periodic function?



3. A periodic function has a period of 12 s. How many cycles does it go through in 40 s?

(A) $3\frac{1}{3}$ cycles

(B) $\frac{3}{10}$ cycle

(C) 28 cycles

(D) 480 cycles

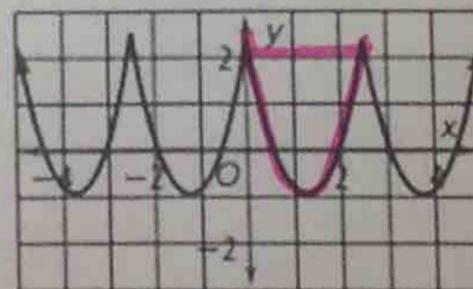
Short Response

4. The graph at the right represents a periodic function.

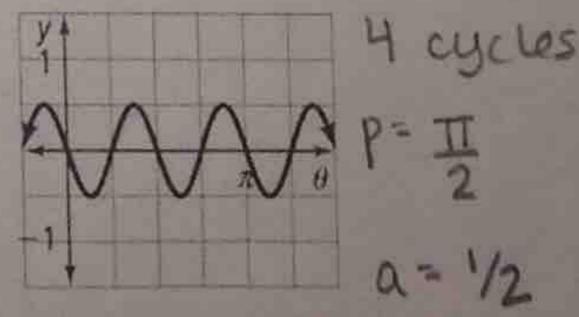
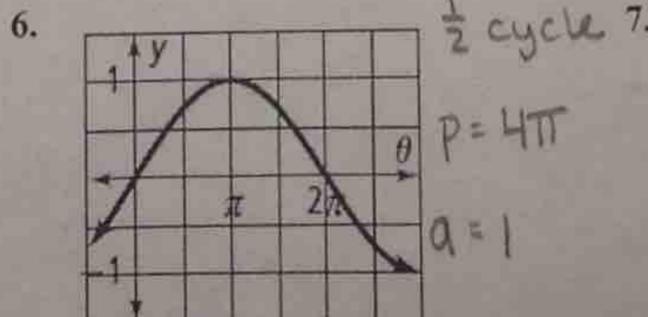
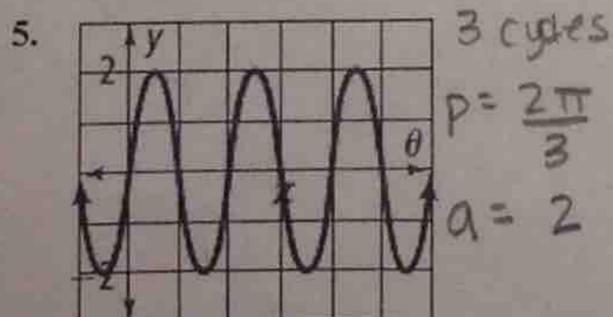
a. What is the period of the function? 2.5

b. What is the amplitude of the function?

$$\frac{2.5 + 1}{2} = \frac{3.5}{2} = 1.75$$



Determine the number of cycles each sine function has in the interval from 0 to 2π . Find the amplitude and period of each function.



Write an equation for each graph in the form $y = a \sin b\theta$ by finding the number of cycles (b).

8. amplitude = 2
 period = $\frac{\pi}{2}$
 $b = 4$

$$\frac{2\pi}{\frac{\pi}{2}} = 2\pi \cdot \frac{2}{\pi} = 4$$

$$y = 2 \sin 4\theta$$

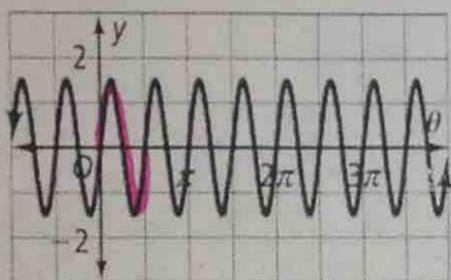
9. amplitude = 2.5
 period = 2π

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

$$y = 2.5 \sin \theta$$

Find the amplitude and period of each sine curve. Then write an equation for each sine function.

12.



$$a = 1.5$$

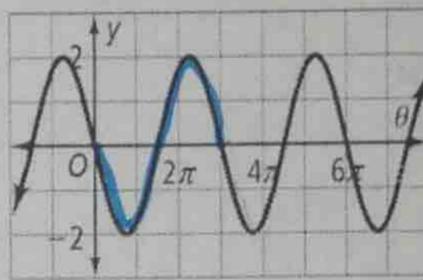
$$\text{period} = \frac{\pi}{2}$$

$$y = 1.5 \sin 4\theta$$

$$b = \frac{2\pi}{\frac{\pi}{2}} = 2\pi \cdot \frac{2}{\pi} = 4$$

$$\text{midline} = 0$$

13.



$$\text{amp} = 2$$

$$\text{period} = 3\pi$$

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

$$y = -2 \sin \frac{2}{3}\theta$$

$$\text{midline} = 0$$

Determine the number of cycles each sine function has in the interval from 0 to 2π . Find the amplitude and period of each function.

14. $y = \sin 2\theta$

$$b = 2$$

$$\text{period} = \frac{2\pi}{2} = \pi$$

$$\text{amp} = 1$$

15. $y = -3 \sin 2\theta$

$$\text{amp} = 3$$

$$\text{period} = \frac{2\pi}{2} = \pi$$

$$b = 2$$

16. $y = 4 \sin 5\theta$

$$\text{amp} = 4$$

$$b = 5$$

$$\text{period} = \frac{2\pi}{5}$$