

### 3.6A Sinusoidal Function Transformations

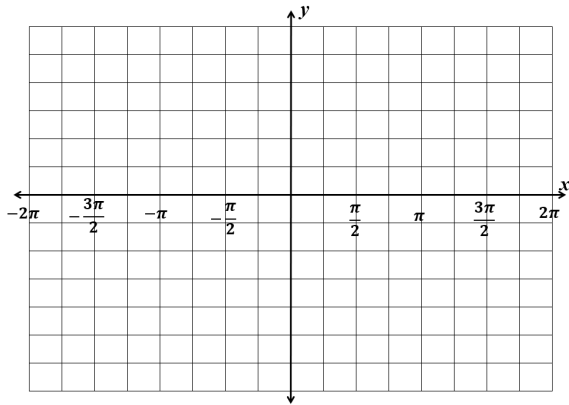
AP Precalculus

Name: \_\_\_\_\_

**Identify the given information and graph the trig function.**

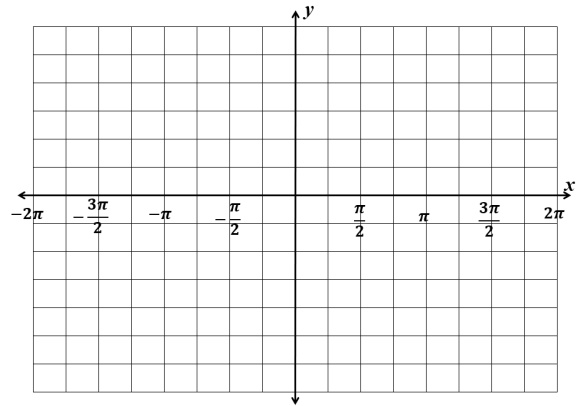
1.  $y = -3 \sin(2x)$

Amp: \_\_\_\_\_ Period: \_\_\_\_\_  
 Midline: \_\_\_\_\_ Freq: \_\_\_\_\_  
 Max value: \_\_\_\_\_ Min value: \_\_\_\_\_



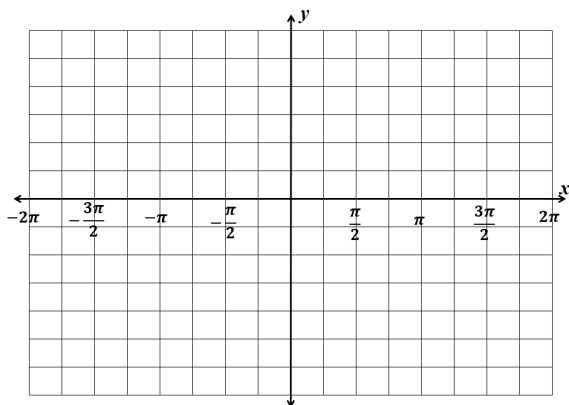
2.  $y = 2 \cos\left(\frac{x}{2}\right)$

Amp: \_\_\_\_\_ Period: \_\_\_\_\_  
 Midline: \_\_\_\_\_ Freq: \_\_\_\_\_  
 Max value: \_\_\_\_\_ Min value: \_\_\_\_\_



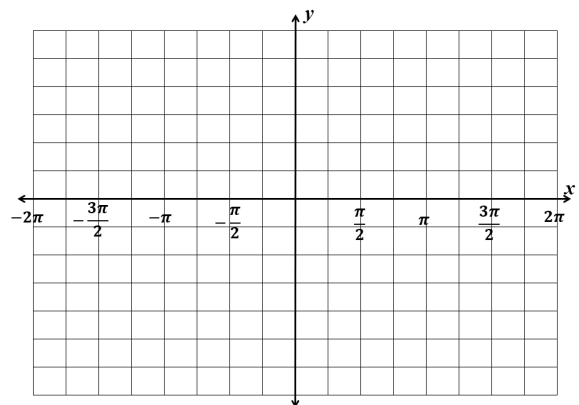
3.  $y = 1 + 2 \sin(2x)$

Amp: \_\_\_\_\_ Period: \_\_\_\_\_  
 Midline: \_\_\_\_\_ Freq: \_\_\_\_\_  
 Max value: \_\_\_\_\_ Min value: \_\_\_\_\_



4.  $y = -3 \cos(3x) - 2$

Amp: \_\_\_\_\_ Period: \_\_\_\_\_  
 Midline: \_\_\_\_\_ Freq: \_\_\_\_\_  
 Max value: \_\_\_\_\_ Min value: \_\_\_\_\_



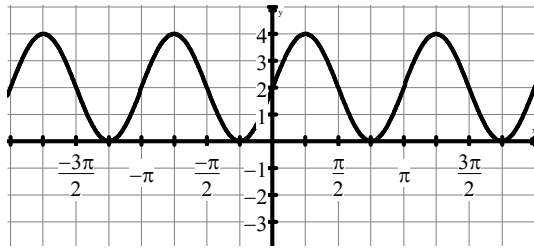
**Use the given information to create a *sine* function.**

5. Amplitude: 3  
 Period:  $\frac{3\pi}{7}$   
 Vertical Shift: down 9

6. Amplitude: 2  
 Period:  $\frac{1}{3}$   
 Vertical Shift: up 4

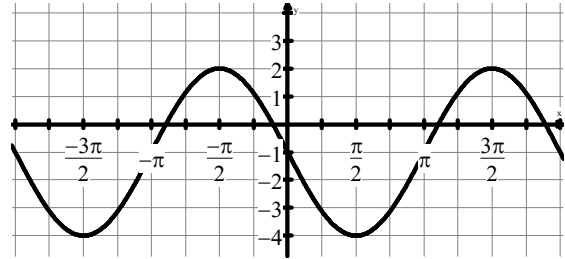
Write the equation of the following sine curves.

7.



$y =$  \_\_\_\_\_

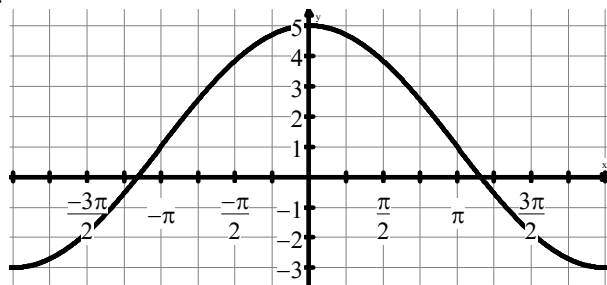
8.



$y =$  \_\_\_\_\_

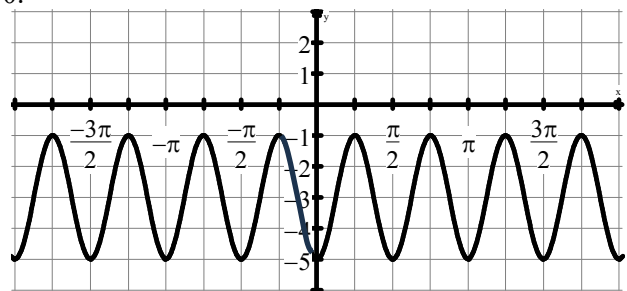
Write the equation of the following cosine curves.

9.



$y =$  \_\_\_\_\_

10.



$y =$  \_\_\_\_\_

Answers to 3.6A CA #2

<p>1. Amp: 3      Period: <math>\pi</math>                      Midline: <math>y = 0</math>      Freq: <math>\frac{1}{\pi}</math>                      Max: 3      Min: -3</p>	<p>2. Amp: 2      Period: <math>4\pi</math>                      Midline: <math>y = 0</math>      Freq: <math>\frac{1}{4\pi}</math>                      Max: 2      Min: -2</p>	<p>3. Amp: 2      Period: <math>\pi</math>                      Midline: <math>y = 1</math>      Freq: <math>\frac{2}{\pi}</math>                      Max: 3      Min: -1</p>
<p>4. Amp: 3      Period: <math>\frac{\pi}{3}</math>                      Midline: <math>y = -2</math>      Freq: <math>\frac{3}{\pi}</math>                      Max: 1      Min: -5</p>	<p>5. <math>y = 3 \sin\left(\frac{14}{3}x\right) - 9</math></p>	<p>6. <math>y = 2 \sin(6\pi x) + 4</math></p>
	<p>7. <math>y = 2 \sin(2x) + 2</math></p>	<p>8. <math>y = -3 \sin(x) - 1</math></p>
	<p>9. <math>y = 4 \cos\left(\frac{x}{2}\right) + 1</math></p>	<p>10. <math>y = -2 \cos(4x) - 3</math></p>