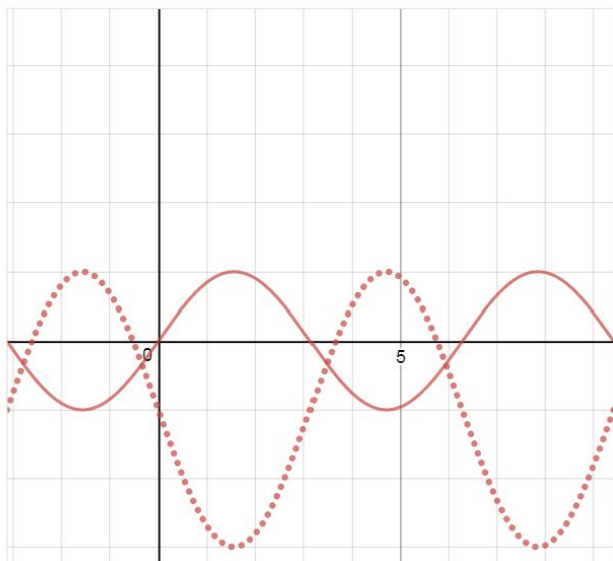


### Writing Trig Functions in Radians

1.

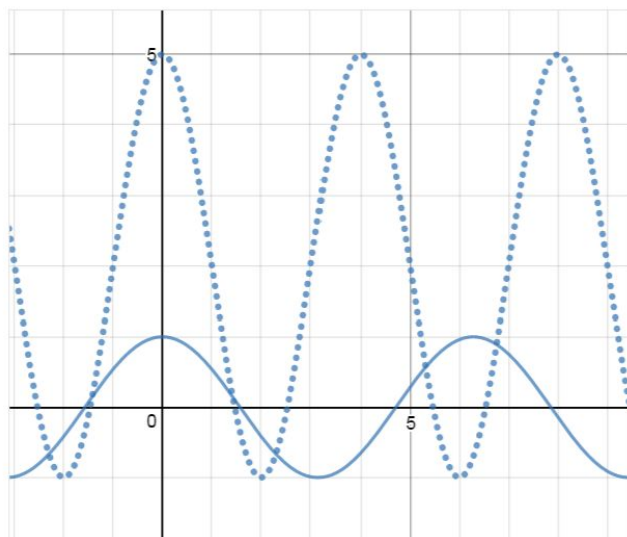


The solid graph shows the parent  $y = \sin x$ . For the dotted curve, find:

1. Amplitude
2. Frequency and Period
3. Midline
4. Horizontal Translation.
5. What is the equation for the dotted curve?

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2.

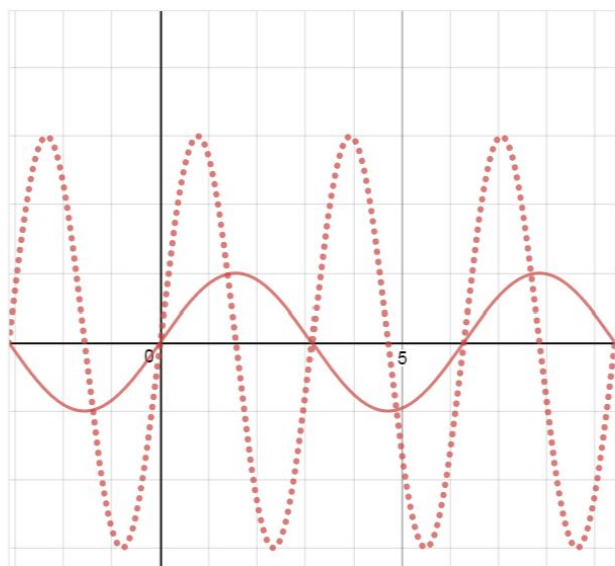


The solid graph shows the parent  $y = \cos x$ . For the dotted curve, find:

1. Amplitude
2. Frequency and Period
3. Midline
4. Horizontal Translation.
5. What is the equation for the dotted curve?

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3.

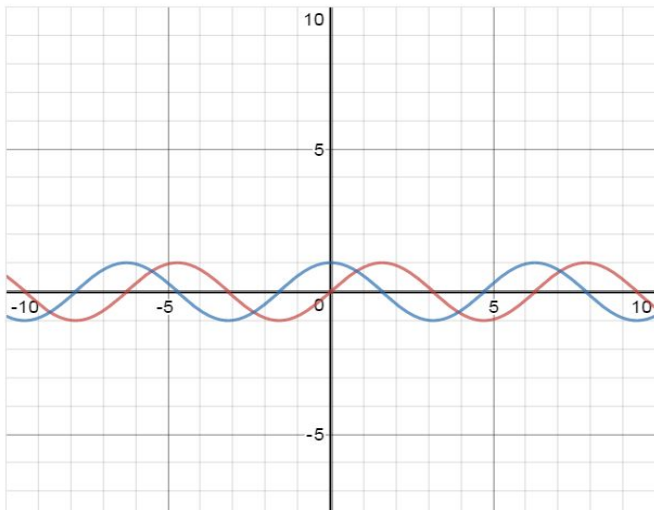


The solid graph shows the parent  $y = \sin x$ . For the dotted curve, find:

1. Amplitude
2. Frequency and Period
3. Midline
4. Horizontal Translation.
5. What is the equation for the dotted curve?

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4.



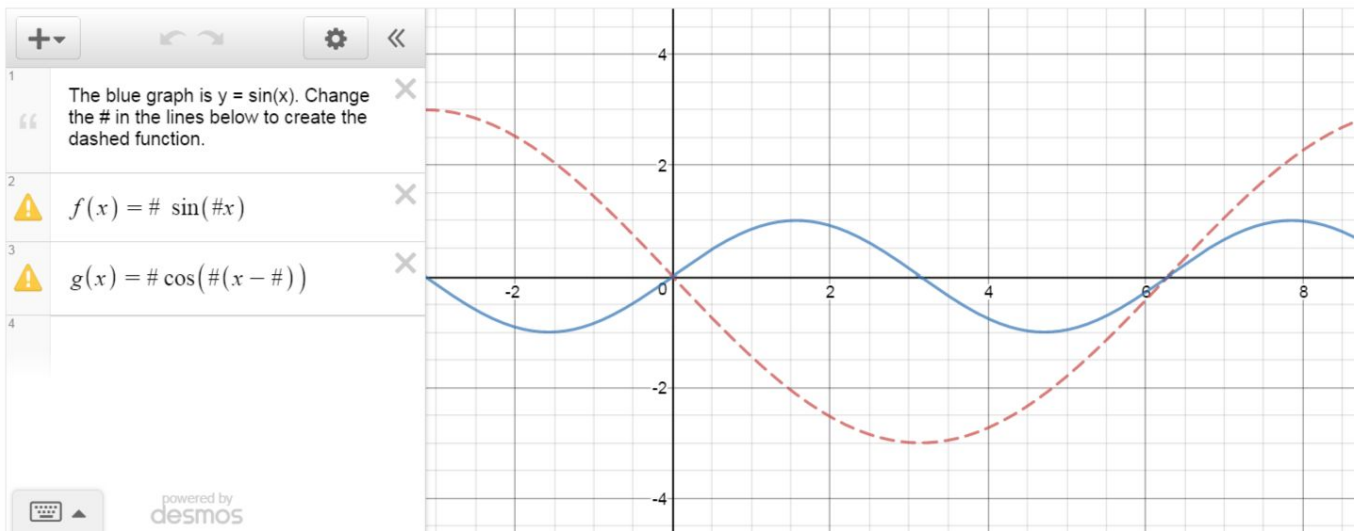
1. Which curve shown is  $y = \sin(x)$ ?  $y = \cos(x)$ ?  
How do you know?

2. Explain why  $\sin(x) = \cos\left(x - \frac{\pi}{2}\right)$ .

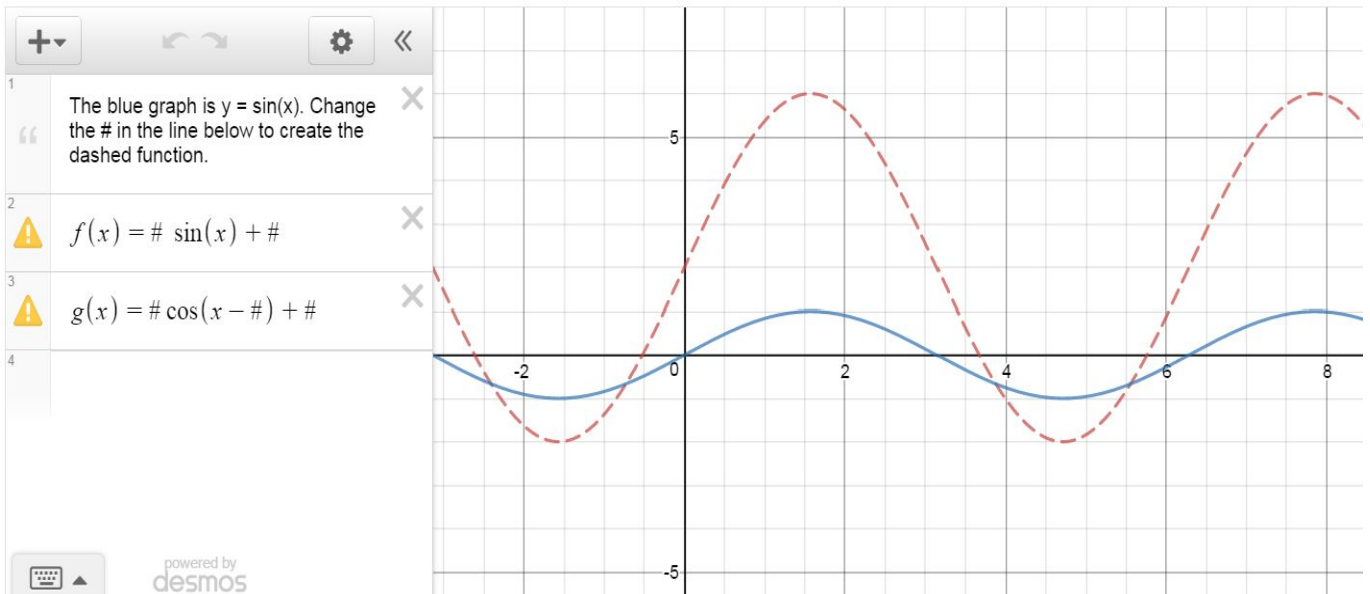
3. Is  $\sin(2x) = \cos\left(2\left(x - \frac{\pi}{2}\right)\right)$ ? Explain why or why not.

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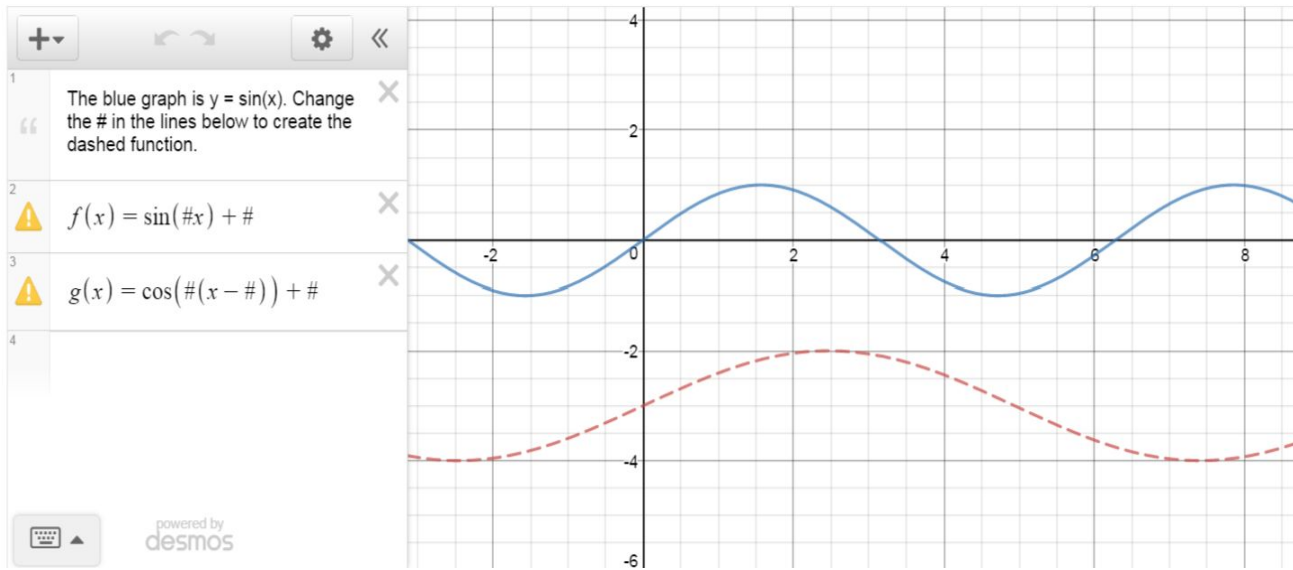
5.



6.



7.



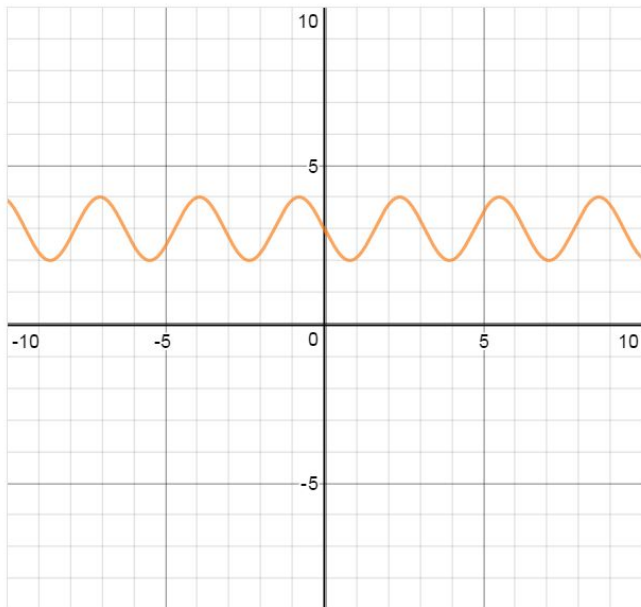
8.

Make sure you write in your notes:

1. How do you use the amplitude, period, horizontal shift and midline to write a trigonometric function in radian mode? How is this different from degree mode?

2. Explain the equation:  $Frequency = \frac{2\pi}{Period}$  (in radian mode)

9.



1. The graph shows the functions  $g(x)$ . Find an equation for  $g(x)$ .

2. Use the graph to evaluate:

a.  $g\left(\frac{\pi}{2}\right)$

b.  $g\left(\frac{7\pi}{4}\right)$

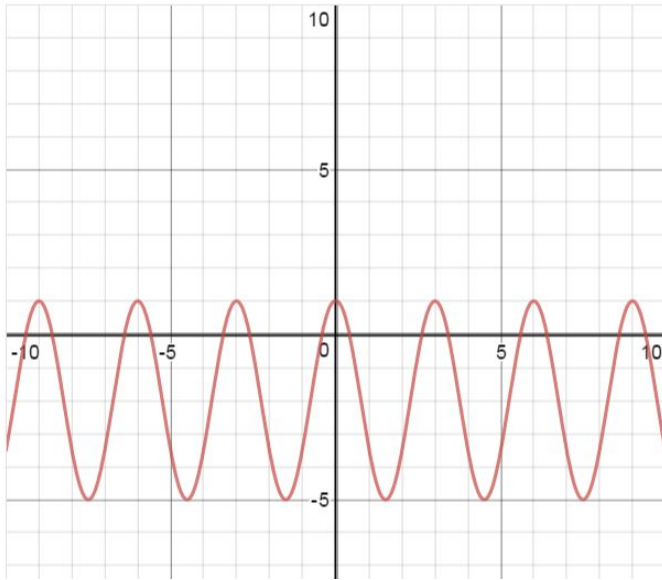
3. Use the graph to solve:

a.  $g(x) = 2, 0 \leq x \leq 2\pi$  (hint: 3 solutions)

b.  $g(x) = 3, -\pi \leq x \leq \pi$

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10.



1. The graph shows the functions  $f(x)$ . Find an equation for  $f(x)$ .

2. Use the graph to evaluate:

a.  $f(3)$

b.  $f(5.25)$

3. Use the graph to solve:

a.  $f(x) = 1$ ,  $0 \leq x \leq 7$  (hint: 3 solutions)

b.  $f(x) = -5$ ,  $-10 \leq x \leq -3$

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11.

Write a note:

How can you use the graph to evaluate trigonometric functions? solve trigonometric equations?

12. Write two equations to fit the given data.

The function  $f(x)$ :

Starts on the midline

Reaches its first maximum at (3, 11)

Reaches its first minimum at (9, 1)

$f(x) =$

$f(x) =$

Solve the following equations using any method. Give all solutions.

a.  $f(x) = 1$

b.  $f(x) = 11$

c.  $f(x) = 6$

d.  $f(x) = 8.5$