Learning Outcomes: What should you be able to after watching the videos?

- Video 1: Sine and Cosine Graphs
  - Evaluate the sine and cosine functions for all of the special angles on the unit circle.
  - Identify the key values for the sine and cosine functions, and use this information to sketch the graphs.
- Video 2: Transformations of Sine and Cosine Graphs
  - Identify the four basic transformations.
  - Identify the fundamental period, the midline, and the amplitude of a graph of a sine or cosine function.
- Video 3: Applications of the Unit Circle
  - Calculate the fundamental period of a sine or cosine function.
  - Calculate the midpoint of two points on the real line and apply this to determine the key values of a sine or cosine function.

#1) Evaluate the sine and cosine functions at the given points.

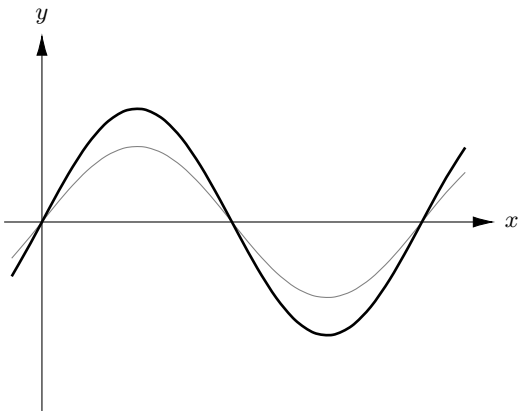
x	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π
$\sin(x)$									
$\cos(x)$									

#2) Complete the chart of key values for both the sine and cosine functions, and use that information to sketch the graph of the functions. Be sure to clearly indicate the x and y-coordinates.

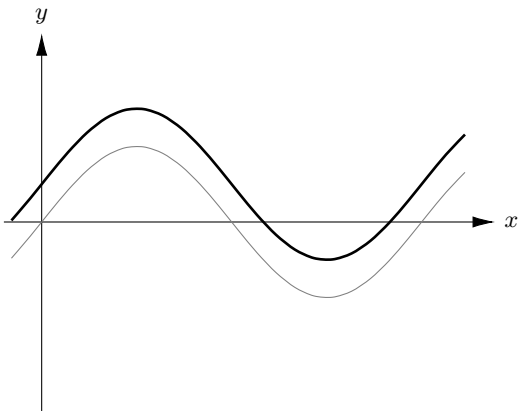
Key Values	1	2	3	4	5
x					
$\sin(x)$					
Location					

Key Values	1	2	3	4	5
x					
$\cos(x)$					
Location					

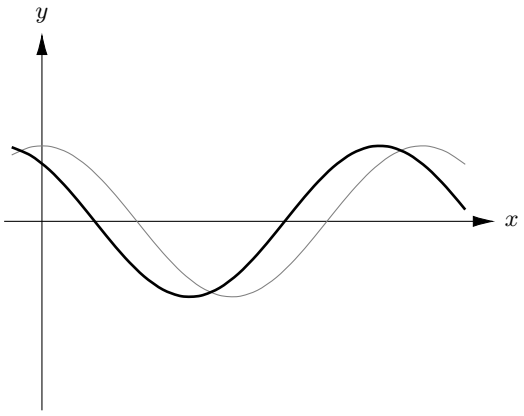
#3) For each pair of graphs, identify whether the transformed graph is a vertical or horizontal translation, stretch, or compression. The initial graph is lighter and the transformed graph is darker.



Transformation:



Transformation:



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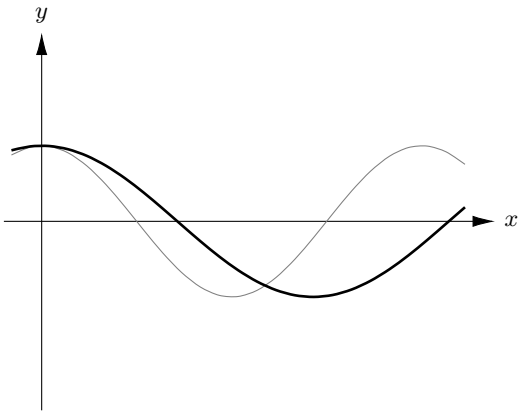

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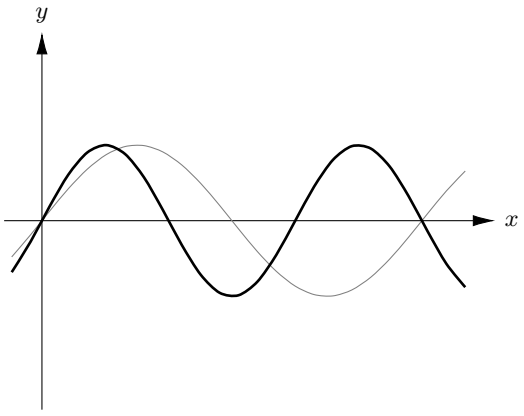
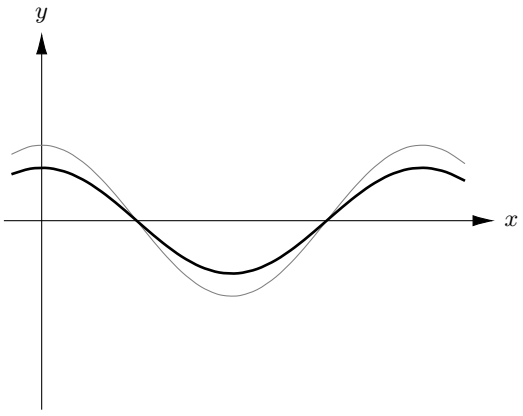
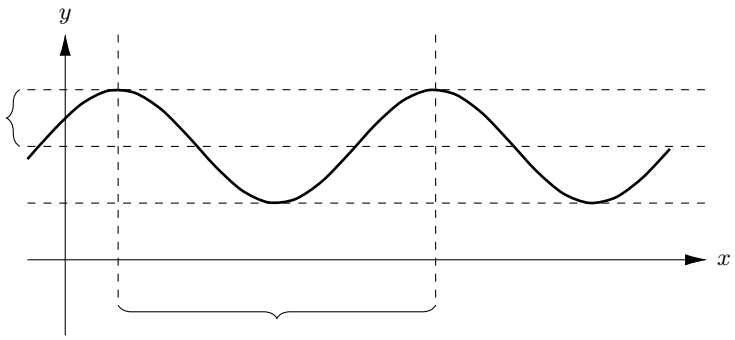


Transformation:



Transformation:

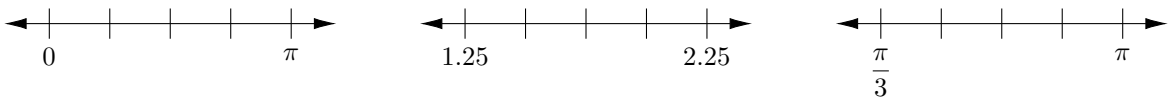
#4) Write the words fundamental period, midline, maximum, minimum, and amplitude in the appropriate places on the graph below.



#5) Determine the fundamental periods for the given functions. Give your answer in interval notation. You do not need to find the subintervals.

$y = \sin(2x)$ $y = \cos\left(\frac{3x}{4} + \frac{\pi}{3}\right)$

#6) Break the intervals into four equally-sized pieces.



Was any aspect of any of the videos confusing or unclear? Do you have any questions?