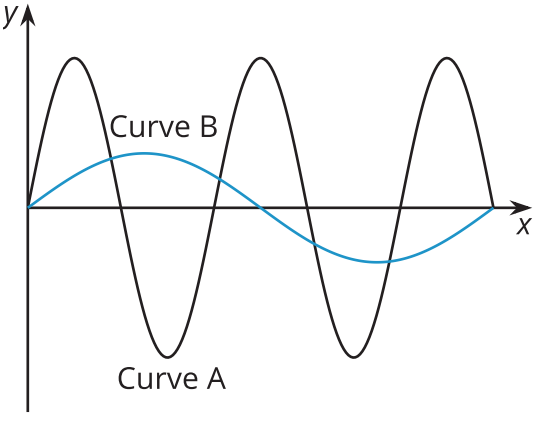
Unit 6 Lesson 15: Features of Trigonometric Graphs (Part 1)

1 Notice and Wonder: Musical Notes (Warm up)

Student Task Statement

Here are pictures of sound waves for two different musical notes:



What do you notice? What do you wonder?

2 Equations and Graphs

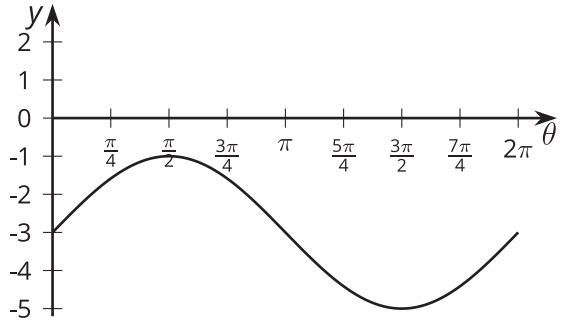
Student Task Statement

Match each equation with its graph. More than 1 equation can match the same graph.

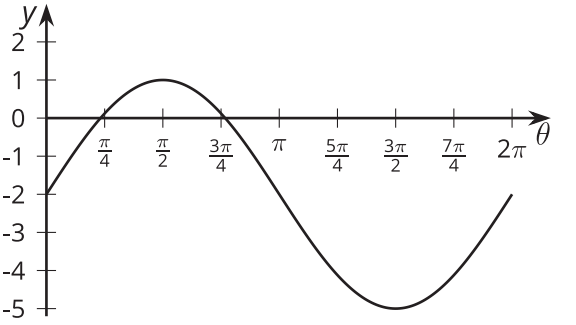
Equations:

1. $y = -\cos(\theta)$
2. $y = 2\sin(\theta) - 3$
3. $y = \cos\left(\theta + \frac{\pi}{2}\right)$
4. $y = 3\sin(\theta) - 2$
5. $y = \sin(\theta - \frac{\pi}{2})$
6. $y = \sin(\theta + \pi)$

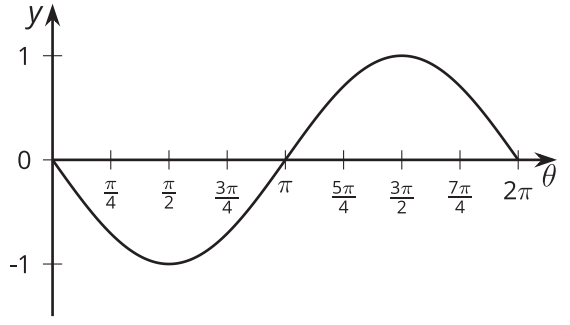
A



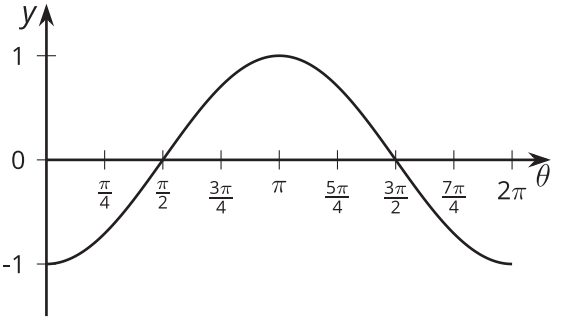
B



C



D



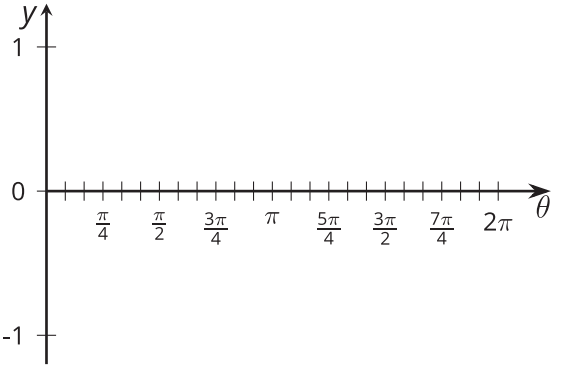
3 Double the Sine

Student Task Statement

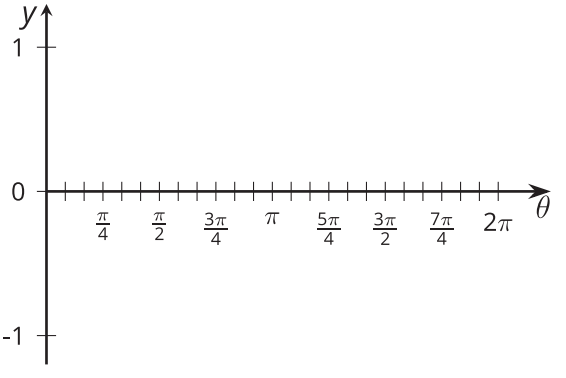
1. Complete the table of values for the expression $\sin(2\theta)$

θ	0	$\frac{\pi}{12}$	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π
$\sin(2\theta)$											

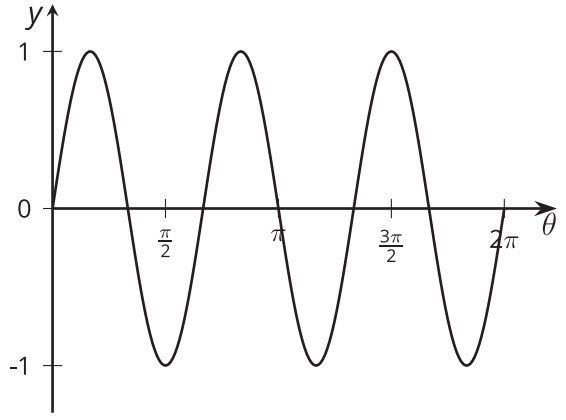
2. Plot the values and sketch a graph of the equation $y = \sin(2\theta)$. How does the graph of $y = \sin(2\theta)$ compare to the graph of $y = \sin(\theta)$?



3. Predict what the graph of $y = \cos(4\theta)$ will look like and make a sketch. Explain your reasoning.



Activity Synthesis



Images for Activity Synthesis