Graphs of trig functions NAME:

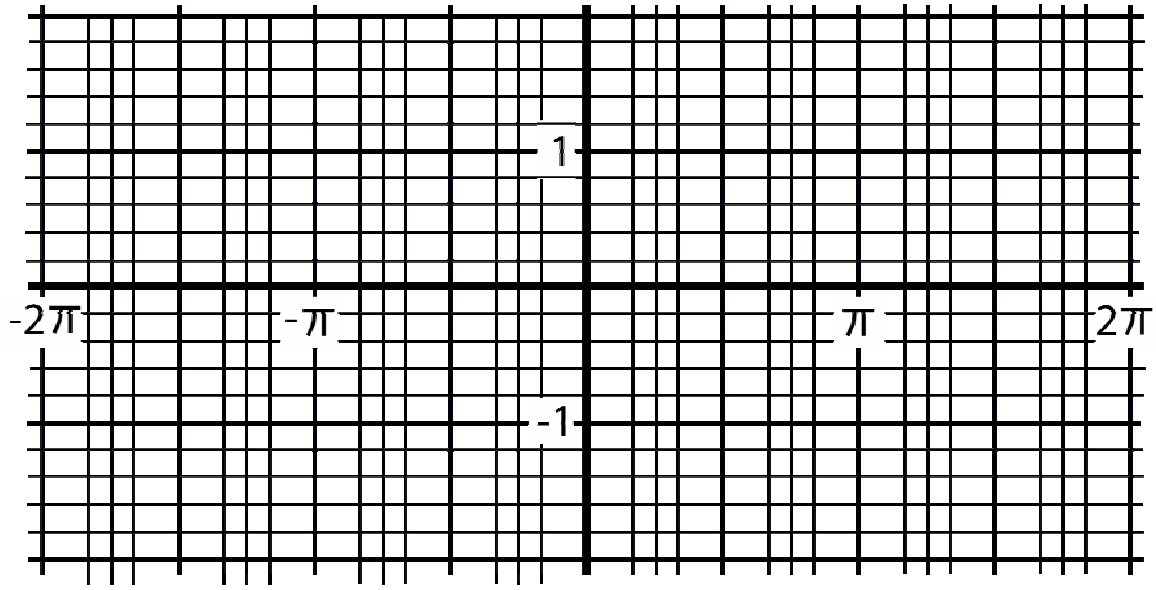
The following table shows the decimal approximations of the values of the trig functions for the arc lengths labeled on the unit circle. Use the table to draw the graphs for $y = \sin(x)$, $y = \cos(x)$, and $y = \tan(x)$ for the x values $0 \le x \le 2\pi$ on the graphs provided. The arc length measures are denoted by vertical lines on the graphs.

arc length *x*	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$	$2\pi/3$	$3\pi/4$	$5\pi/6$
sine(*x*)	0	.5	.707	.866	1	.866	.707	.5
cosine(*x*)	1	.866	.707	.5	0	-.5	-.707	-.866
tangent(*x*)	0	.577	1	1.732	undefined	-1.732	-1	-.577

arc length *x* (cont.)	π	$7\pi/6$	$5\pi/4$	$4\pi/3$	$3\pi/2$	$5\pi/3$	$7\pi/4$	$11\pi/6$	2π
sine(*x*)	0	-.5	-.707	-.866	-1	-.866	-.707	-.5	0
cosine(*x*)	-1	-.866	-.707	-.5	0	.5	.707	.866	1
tangent(*x*)	0	.577	1	1.732	undefined	-1.732	-1	-.577	0

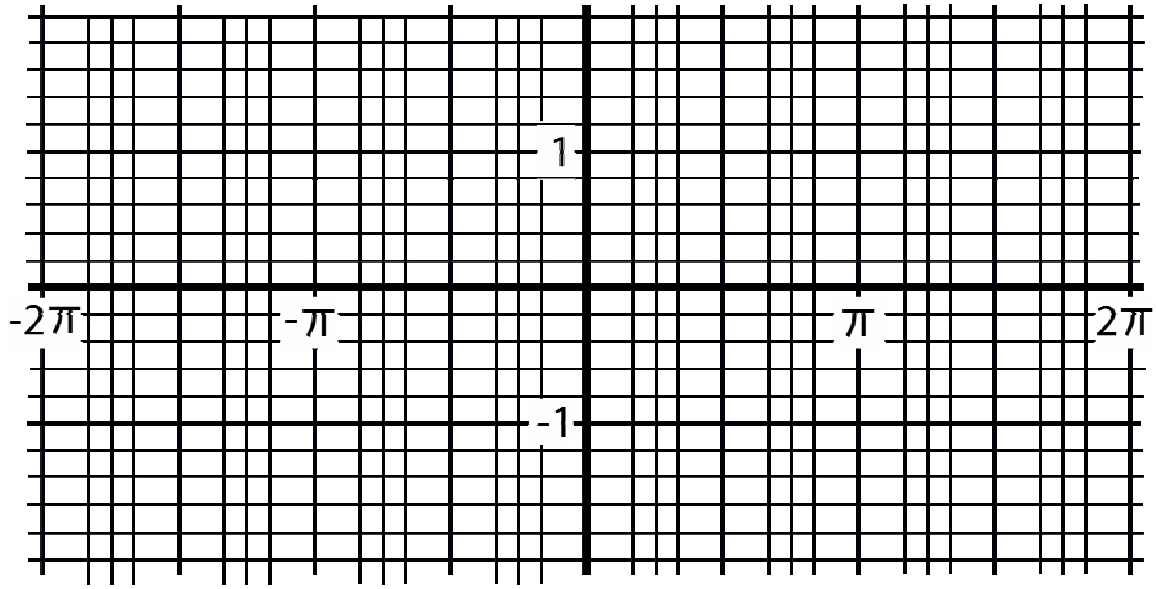
Plot the points from the table to draw the sine graph for $0 \le x \le 2\pi$.

$y = \sin(x)$



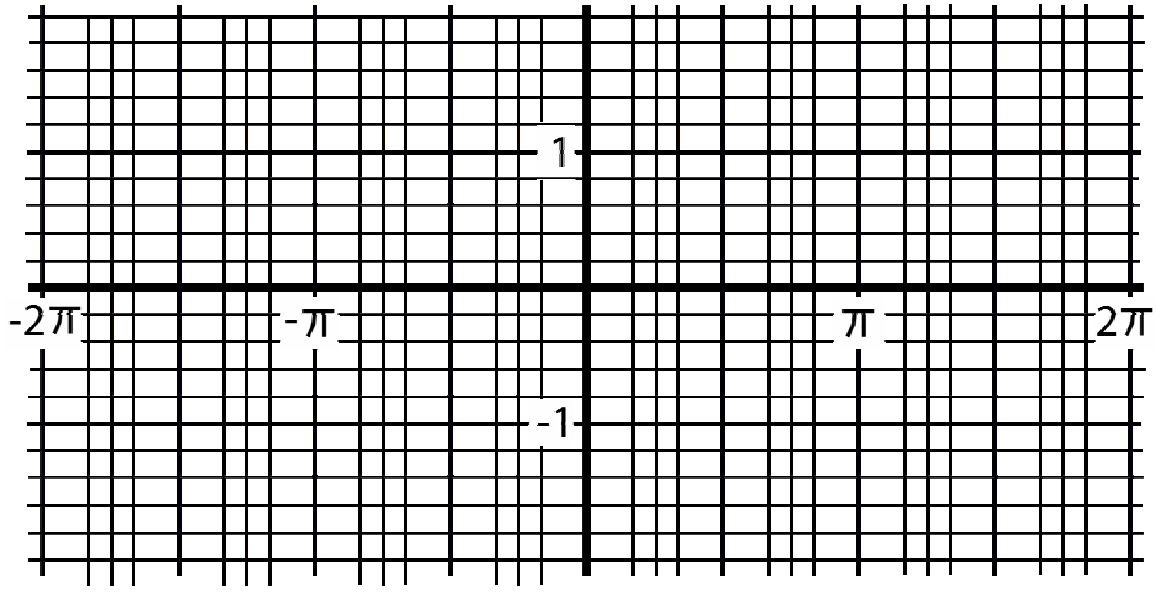
Plot the points from the table to draw the cosine graph for $0 \le x \le 2\pi$.

$y = \cos(x)$



Plot the points from the table to draw the tangent graph for $0 \le x \le 2\pi$. Draw vertical asymptotes, where the tangent function is undefined, as dashed lines. (The graph approaches these asymptotes much like a rational function approaches its asymptotes.)

$y = \tan(x)$



From what you know about the unit circle and trig functions, how would the graphs look for the x values $-2\pi \le x \le 0$? Complete the graphs for the x values $-2\pi \le x \le 0$. Notice the repetitive nature of the graphs.