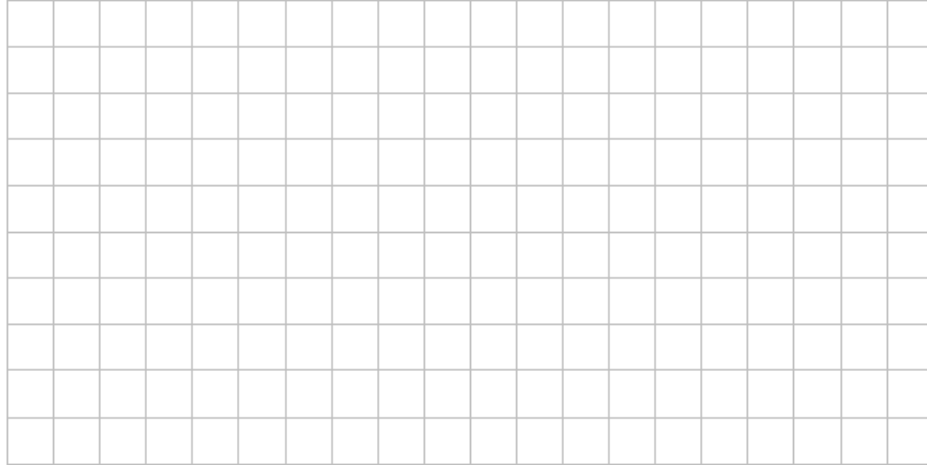


Graphing Sine and Cosine Curves

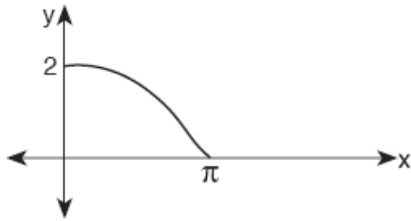
1. On the accompanying grid, sketch the graphs of functions $f(x) = 3\sin 2x$ and $g(x) = \cos \frac{1}{2}x$, and state how many times the functions intersect between $x = -2\pi$ and $x = 2\pi$.



2. A pair of figure skaters graphed part of their routine on a grid. The male skater's path is represented by the equation $m(x) = 3\sin \frac{1}{2}x$, and the female skater's path is represented by the equation $f(x) = -2\cos x$. On the accompanying grid, sketch both paths and state how many times the paths of the skaters intersect between $x = 0$ and $x = 4\pi$.



3. The accompanying diagram shows a section of a sound wave as displayed on an oscilloscope.



Which equation could represent this graph?

(1) $y = 2 \cos \frac{x}{2}$ (3) $y = \frac{1}{2} \cos 2x$

(2) $y = 2 \sin \frac{x}{2}$ (4) $y = \frac{1}{2} \sin \frac{\pi}{2}x$

4. On the accompanying set of axes, graph the equations $y = 4 \cos x$ and $y = 2$ in the domain $-\pi \leq x \leq \pi$.



5. *a* Sketch the graph of the equation $y = 2 \cos x$ in the interval $-\pi \leq x \leq \pi$.

b On the same set of axes, reflect the graph drawn in part *a* in the x -axis and label it *b*.

c Write an equation of the graph drawn in part *b*.

d Using the equation from part *c*, find the value of y when $x = \frac{\pi}{6}$.

