

Graphs of Waves



Preliminaries and Objectives

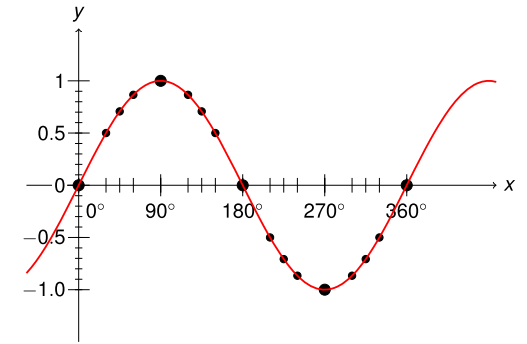
Preliminaries:

- Values of $\sin x$ and $\cos x$ from unit circle.

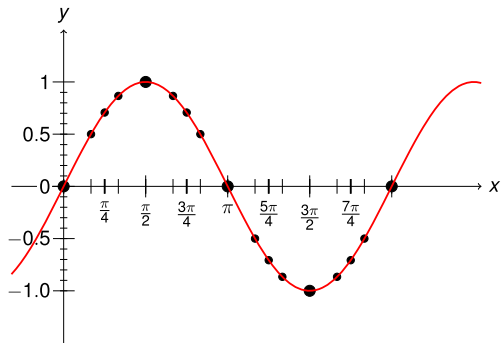
Objectives:

- Draw an accurate graph of $y = \sin x$ and $y = \cos x$ over several periods.

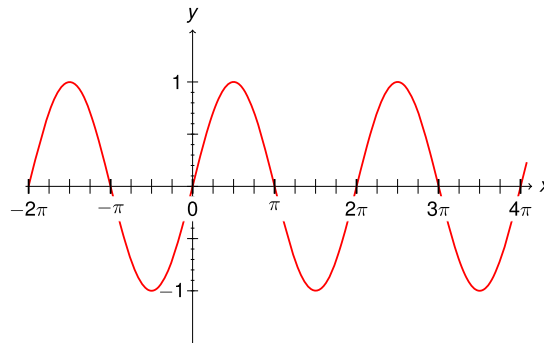
How to graph $y = \sin x$



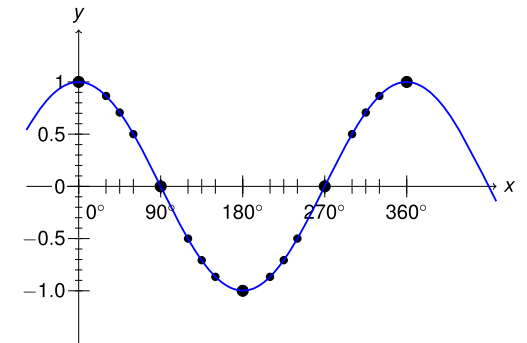
How to graph $y = \sin x$



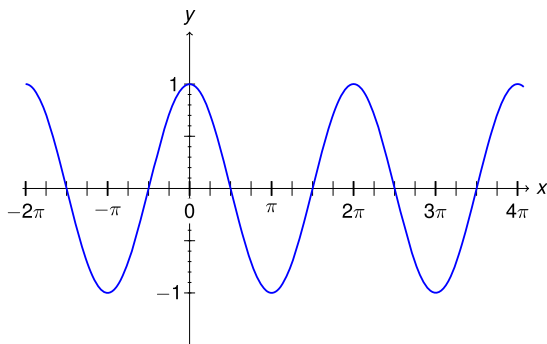
How to graph $y = \sin x$



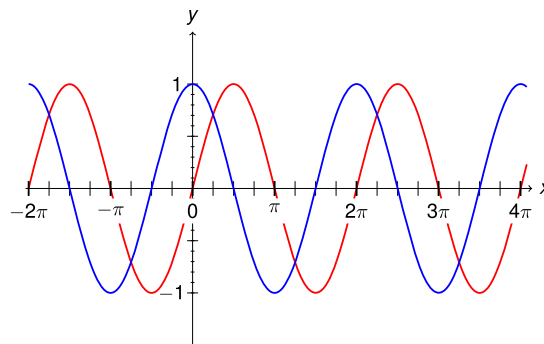
How to graph $y = \cos x$



How to graph $y = \cos x$



How to graph $y = \cos x$



Recap

- $y = \sin x$ has x -intercepts at $\dots -2\pi, -\pi, 0, \pi, 2\pi, 3\pi, 4\pi \dots$
- Peaks at $\dots -\frac{7\pi}{2}, -\frac{3\pi}{2}, \frac{\pi}{2}, \frac{5\pi}{2}, \frac{9\pi}{2} \dots$
- Valleys at $\dots -\frac{5\pi}{2}, -\frac{\pi}{2}, \frac{3\pi}{2}, \frac{7\pi}{2}, \frac{11\pi}{2} \dots$
- $y = \cos x$ has x -intercepts at $\dots -\frac{3\pi}{2}, -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2} \dots$
- Peaks at $\dots -4\pi, -2\pi, 0, 2\pi, 4\pi, 6\pi \dots$
- Valleys at $\dots -3\pi, -\pi, \pi, 3\pi, 5\pi \dots$