
1. Graph the following functions, in each of the following windows:

- $0 \leq x \leq \pi$
- $0 \leq x \leq 2\pi$
- $0 \leq x \leq 3\pi$
- $0 \leq x \leq 4\pi$

For all windows, let $-4 \leq y \leq 4$.

- (a) $y = \sin x$
- (b) $y = 2 \sin x$
- (c) $y = -2 \sin x$
- (d) $y = \frac{1}{2} \sin x$
- (e) $y = \sin 2x$
- (f) $y = -\sin 2x$
- (g) $y = \sin \frac{1}{2}x$
- (h) $y = 2 \sin 2x$
- (i) $y = \sin x + 2$
- (j) $y = \sin x - 2$
- (k) $y = 2 \sin(2x) + 1$

2. What is the period of each of the functions above?
3. What is the amplitude of each of the functions above?
4. Write the equation for a sine function with amplitude 4 and period 4π .
5. Explain how to control the amplitude of a sine function.
6. Explain how to control the period of a sine function.
7. Will period and amplitude be controlled the same way in a cosine function? Why or why not?