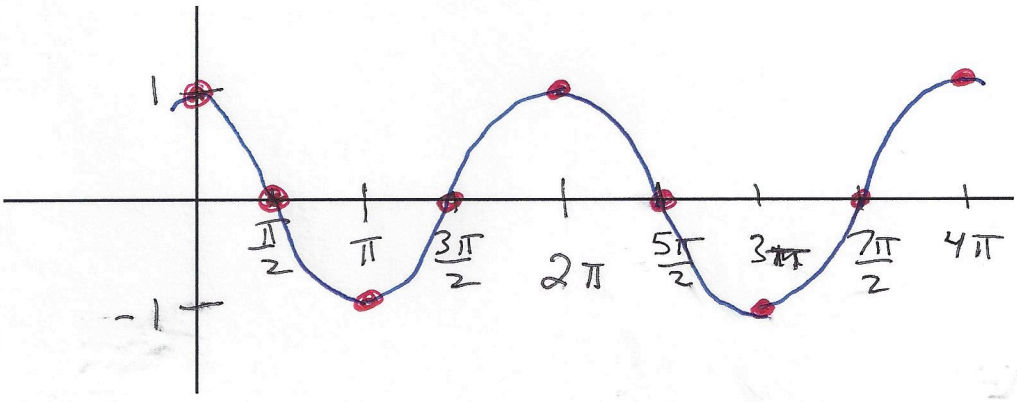
In-Class Example 10: Graph two cycles of $f(x) = \cos(x)$ by first identifying **(a)** the amplitude, **(b)** the frequency, and **(c)** the period. Use one (or both) of the techniques to identify the featured values along the x-axis.

(i) locate the period in the middle of the x-axis;
(ii) to the left of the period, make 3 equally-spaced marks and use the half-half technique to identify the x-values;
(iii) to the right of the period, ~~the~~ make four equally-spaced marks representing the 2nd cycle; the 1st mark after the period is 5 times the s.c.u. ($\frac{1}{4}$-period); count by the s.c.u. to find the rest of the x-axis values.
(iv) Draw the graph. The starting point for cosine is the amplitude (0,1), a maximum; then to the x-axis (zero); then to the min.

a) Amplitude: is 1

b) Frequency: is 1

c) Period: $\frac{2\pi}{1} = 2\pi$



In-Class Example 11: Graph two cycles of $f(x) = \sin(x)$ by first identifying **(a)** the amplitude, **(b)** the frequency, and **(c)** the period. Use one (or both) of the techniques to identify the featured values along the x-axis.

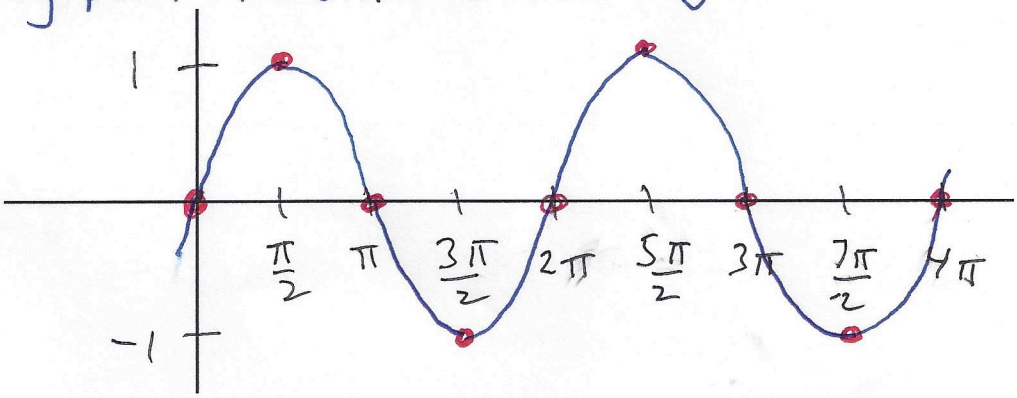
$f(x) = \sin x$

(iv) the starting point for sine is the origin.

a) Amplitude: 1

b) Frequency: 1

c) Period: $\frac{2\pi}{1} = 2\pi$



In-Class Example 12: Graph **two cycles** of each function by first determining **(a)** the amplitude, **(b)** whether the graph is reflected or not, **(c)** the frequency, and **(d)** the period. Mark each axis with featured values.

Use the same guidelines as in In-Class Example #11.

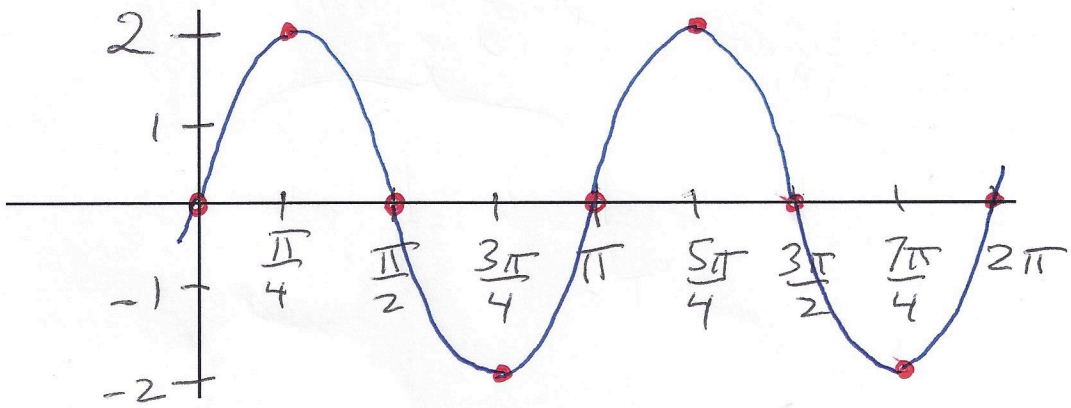
a) $f(x) = \sin(2x)$

a) Amplitude: 1

b) Is it reflected? No

c) Frequency: 2

d) Period: $\frac{2\pi}{2} = \pi$



b) $f(x) = -2\cos\left(\frac{2}{3}x\right)$

a) Amplitude: 2

b) Is it reflected? yes

c) Frequency: $\frac{2}{3}$

d) Period: $\frac{2\pi}{\frac{2}{3}} = \frac{2\pi}{1} \cdot \frac{3}{2} = 3\pi$