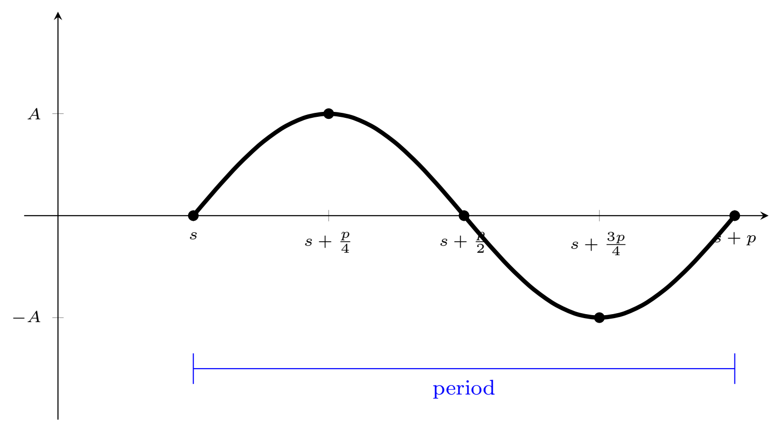
Graphing Sine

Suppose we want to graph $y = A\sin(Bx - C)$, where $A, B, C \neq 0$. For the time being, assume that all three are positive. Then the amplitude is A, the period is $\frac{2\pi}{B}$, and the phase shift is $\frac{C}{B}$. Let's also let $p = \frac{2\pi}{B}$ be the period and $s = \frac{C}{B}$ be the phase shift. The graph of one period of $y = A\sin(Bx - C)$ will always look like below (of course, you can choose a different period of the function to draw, but this seems the most natural to the author).

The x-intercepts will always occur at the points $x = s, s + \frac{p}{2}, s + p$, and the maxima/minima will always occur at the points $x = s + \frac{p}{4}, s + \frac{3p}{4}$. By plotting these five points, you can get a pretty accurate graph of $y = A\sin(Bx - C)$.

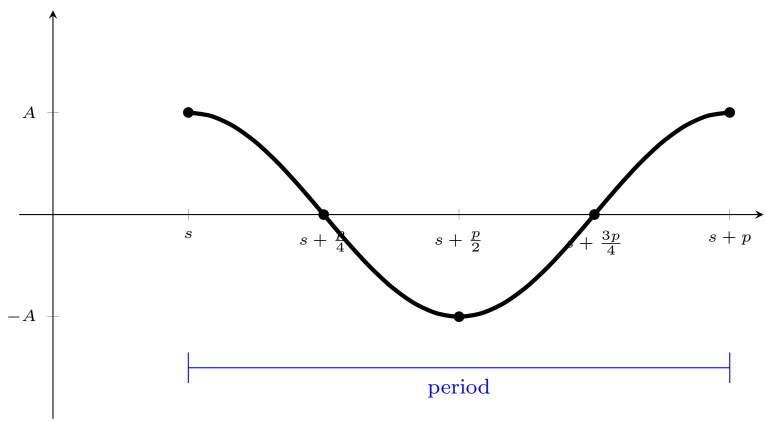


Of course, if $A < 0$, your graph will be the same as above, but reflected across the x-axis, and if $C < 0$, your shift will be to the left by s units.

Graphing Cosine

Suppose we want to graph $y = A\cos(Bx - C)$, where $A, B, C \neq 0$. For the time being, assume that all three are positive. Then the amplitude is A, the period is $\frac{2\pi}{B}$, and the phase shift is $\frac{C}{B}$. Let's also let $p = \frac{2\pi}{B}$ be the period and $s = \frac{C}{B}$ be the phase shift. The graph of one period of $y = A\cos(Bx - C)$ will always look like below (of course, you can choose a different period of the function to draw, but this seems the most natural to the author).

The x-intercepts will always occur at the points $x = s + \frac{p}{4}, s + \frac{3p}{4}$, and the maxima/minima will always occur at the points $x = s, s + \frac{p}{2}, s + p$. By plotting these five points, you can get a pretty accurate graph of $y = A\cos(Bx - C)$.



Of course, if $A < 0$, your graph will be the same as above, but reflected across the x-axis, and if $C < 0$, your shift will be to the left by s units.