

This problem comes from MATH 1316 Trigonometry – David Katz

What is the phase angle for this trig function $f(x) = 4 + 5\sin(4\pi x - 3\pi)$?

Recall the role the various parameters play in a trig function $f(x) = K + A \sin(Bx + C)$:

$K =$ controls the upward or downward translation of the trig function. The line $y = K$ is the center of the trig function's graph.

$A =$ controls the amplitude or height of the trig function. The maximum and minimum of the trig function's graph are at $y = K + |A|$ and $y = K - |A|$, respectively. If $A < 0$, then the graph has a reflection about the line $y = K$.

$B =$ controls the period or cycle of the trig function. One period for the sine function $= 2\pi/|B|$

$C =$ is called the ***phase angle***. The value of C also controls the phase shift left or right of the trig function's graph. The phase shift $= C/B$. Note that if $C/B < 0$, the phase shift is to the *right*, and if $C/B > 0$, the phase shift is to the *left*.

So in this problem the phase angle is -3π .