7. [10 points] We start with the function $f(x) = \cos x$ and perform the following transformations to its graph:

(i) Stretch it vertically by a factor of 2.5

(ii) Compress it horizontally by a factor of $\frac{1}{3}$

(iii) Shift it vertically, down by 1

(iv) Shift it horizontally right by π.

a. [4 points] Call the function represented by the new graph $g(x)$. What is a formula for this new function $g(x)$?

$g(x) =$ $2.5\cos(3(x-\pi))-1$

b. [2 points] What is an equation for the midline of $g(x)$?

$y =$ -1

c. [2 points] What is the amplitude of $g(x)$?

Amplitude: 2.5

d. [2 points] What is the period of $g(x)$?

Period: $2\pi/3$