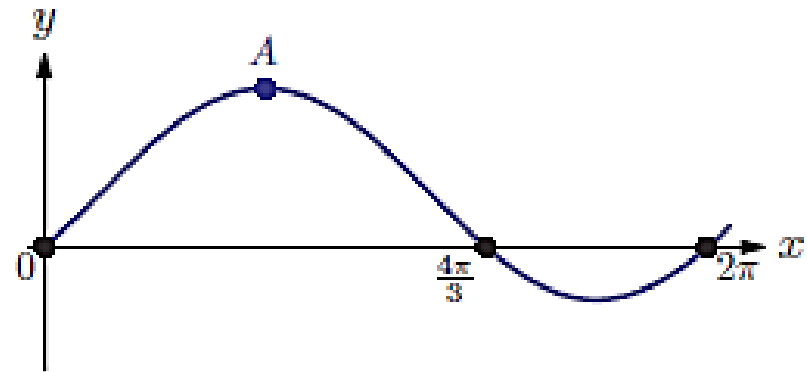


The graph shows the function  $f(x) = \sin(x - k) + c$ .

- (a) (i) Write down the coordinates of  $A$ .  
(ii) Hence find the values of  $k$  and  $c$ .



- (b) Find all the zeros of the function in the interval  $[-4\pi, 0]$ .

- (c) Consider the equation  $f(x) = k$  with  $-0.5 < k < 0$ .

- (i) Write down the number of solutions of this equation in the interval  $[0, 9\pi]$ .  
(ii) Given that the smallest positive solution is  $\alpha$ , write the next two solutions in terms of  $\alpha$ .

[11 marks]