

**Question 1** (11 marks)

(a) Using first principles, find  $f'(x)$  if  $f(x) = x^2 - 3$ .

(3 marks)

(b) Determine  $\frac{dy}{dx}$  for the following two functions. You do not need to simplify your answers.

(i)  $y = 3x^4 + (7 + \sin x)^2$

(3 marks)

