Question	Scheme	Marks	AOs
2(a)	$$f'(x) = 3x^2 - 10x - \frac{3}{x^2}$$	M1 A1	1.1b 1.1b
		(2)	
(b)	Change of sign and f(x) is continuous so α lies between 0.5 and 0.6	B1	2.4
		(1)	
(c)	$$x_0 = 0.5 \Rightarrow x_1 = 0.5 - \frac{f(0.5)}{f'(0.5)} = 0.5 - \frac{0.875}{3(0.5)^2 - 10(0.5) - 3(0.5)^{-2}}$$	M1	1.1b
	$$x_1 = 0.554$$	A1	1.1b
		(2)	
			(5 marks)

Notes

(a)

M1: For $x^n \rightarrow x^{n-1}$

A1: Correct derivative

(b)

B1: Correct explanation

(c)

M1: Applies the N-R method correctly for their f$'(x)$

A1: For awrt 0.554