QUESTION NUMBER	SCHEME	MARKS
1	N.B. Calculator warning :' Not entirely'	
1(a)	Differentiate displacement to find an expression for velocity.	M1
	$v = 8t^3 - 42t^2 + 45t + 14$	A1
	Substitutes $t = 2$ to find $v = 0$ Or solves $v = 0$ to give $t = -\frac{1}{4}, 2, 3.5$ N.B. Only stating with no working t=2,v=0 or v=0,t=2 is A0	A1*
		(3)
1(b)	Complete method to find total distance = $\lvert x_2 - x_0 \rvert + \lvert x_3 - x_2 \rvert$	M1
	$\frac{95}{2}$ (m)	A1
		(2)
1(c)	Differentiates velocity $24t^2 - 84t + 45$	M1
	Substitute $t =$ 1.5 into differentiated expression	M1
	Correct **magnitude** of acceleration 27 ($\mathrm{m\,s^{-2}}$)	A1
		(3)
		(8)
	Notes for question	
1(a)		
M1	Differentiate given expression with at least two powers of t decreasing by 1.	
A1	Correct differentiated expression.	
A1*	Obtain t=2 from correct and complete working. If solving equation, and if any incorrect roots appear A0.	
1(b)		
M1	Complete method to find the total distance. Do not condone sign errors. (x_0=0 ,x_2=38, x_3=28.5)	
A1	Correct distance, must be positive	
1(c)		
M1	Differentiate velocity to find an expression for acceleration with at least two powers of t decreasing by 1.	
M1	Substitute 1.5 into their differentiated velocity.	
A1	Correct answer, must be positive.	