Q	Marking instructions	AO	Marks	Typical solution
6(a)	Substitutes t = 9.5 into $x = -2t^2$ or $2t^2$	3.4	M1	$t = 9.5 \Rightarrow x = -2 \times 9.5^2 = -180.5$ Length = 180.5 cm
	Obtains 180.5 Condone incorrect or missing units ISW	1.1b	A1	
	Subtotal		**2**	

Q	Marking instructions	AO	Marks	Typical solution
6(b)(i)	Obtains 9 – 1.4t or –4t OE Ignore labels	1.1b	B1	$\frac{dy}{dt} = 9 - 1.4t$ $\frac{dx}{dt} = -4t$
	Uses chain rule to obtain $\frac{dy}{dx}$ Condone sign error	3.1a	M1	$\frac{dy}{dx} = \frac{dy}{dt} \times \frac{dt}{dx}$
	Obtains a correct expression Do not ISW	1.1b	A1	$\frac{dy}{dx} = \frac{9 - 1.4t}{-4t}$
	Subtotal		**3**	

Q	Marking instructions	AO	Marks	Typical solution
6(b)(ii)	Equates their $\frac{dy}{dx}$ or their $\frac{dy}{dt}$ or their numerator of their $\frac{dy}{dx}$ to 0 PI by correct t from correct $\frac{dy}{dx}$	3.1a	M1	$\frac{9-1.4t}{-4t}=0$ $t=\frac{45}{7}=6.43$ $y=9\times6.43-0.7\times(6.43)^2$ $=28.9$ Width of surfboard = 58 cm $180.5\div3=60.2\approx58$ Hence the width is approximately one third of the length
	Obtains correct value for t ACF eg t = 6.4 or $\frac{9}{1.4}$ Must come from correct $\frac{dy}{dx}$	1.1b	A1	
	Substitutes their value for t into the model for y and obtains a value for y provided $0 < t < 9.5$	3.4	M1	
	Compares correct width and correct length and $\frac{1}{3}$ or 3 with a correct concluding statement OE CSO Allow 180 for length	3.2a	R1	
	Subtotal		**4**	

	Question 6 Total		**9**	