	Accept any fraction that simplifies to $\frac{1}{48}$. You will see $\frac{12}{576}$ which is completely acceptable.

Question	Scheme	Marks
7(a)	$S = 5x^3 + (3x-4)^2$ $\Rightarrow S = 5x^3 + 9x^2 - 24x + 16$ *	M1 A1 cso [2]
(b)	$\frac{dS}{dx} = 15x^2 + 18x - 24 = 0$ $\Rightarrow (5x-4)(x+2) = 0 \Rightarrow x = \frac{4}{5}, -2$ $\frac{d^2S}{dx^2} = 30x + 18 = 30\left(\frac{4}{5}\right) + 18 \Rightarrow +\text{ve}$ hence minimum	M1 M1A1 M1A1 [5]
(c)	$S = 5\left(\frac{4}{5}\right)^3 + 9\left(\frac{4}{5}\right)^2 - 24\left(\frac{4}{5}\right) + 16 = \frac{128}{25}$ or 5.12	M1A1 [2]
		Total 9 marks

Part	Mark	Notes
(a)	M1	For substituting y into the given S Substituting x will not yield the required expression.
	A1 cso	For obtaining the given expression with no errors. You must check every line of their working.
(b)	M1	For an attempt to differentiate **the given** expression for S wrt x, Accept **at least** two terms fully correct with no power of x to increase.
	M1	Sets their differentiated expression = 0 and attempts to solve, **provided** it is a quadratic. See General Guidance for the definition of an attempt to solve a QE
	A1	For the correct **two** values of x.
	M1	Attempts to differentiate again. Minimally acceptable attempt is $\left(\frac{d^2S}{dx^2}\right) = Ax + B$
	A1	Conclusion: Concludes that the positive value of x $\left(\frac{4}{5}\right)$ will give a positive $\frac{d^2S}{dx^2}$ hence will be a minimum. For example, positive + positive = positive hence minimum. OR Substitutes either value of x, with the appropriate conclusion and correctly concludes that $x = \frac{4}{5}$ gives a minimum.