Q	Marking Instructions	AO	Marks	Typical Solution
6 (a)	Translates rate of change into $\frac{\mathrm{d}m}{\mathrm{d}t}$	AO3.3	M1	$\frac{\mathrm{d}m}{\mathrm{d}t} = -\frac{k}{\sqrt[3]{m}}$
	Translates inverse proportionality by using $\frac{1}{\sqrt[3]{m}}$ in an equation (no need to see minus sign or k to earn this mark)	AO3.3	M1	
	Forms correct equation with correct notation $\frac{\mathrm{d}m}{\mathrm{d}t} = -\frac{k}{\sqrt[3]{m}}$ or equivalent eg $-\frac{\mathrm{d}m}{\mathrm{d}t} = \frac{k}{\sqrt[3]{m}}$ or $\frac{\mathrm{d}m}{\mathrm{d}t} = -km^{-\frac{1}{3}}$	AO1.1b	A1	
(b)	Gives a relevant criticism of the assumption	AO3.5b	E1	Sam's mass is unlikely to follow this model all the time, when he eats his mass will go up. OR Sam's assumption predicts that his mass will decrease indefinitely.
	Total		**4**	