Question Number	Scheme	Marks
1(a)	$(8-3x)^{-\frac{1}{3}}=\frac{1}{2}\left(1-\frac{3}{8}x\right)^{-\frac{1}{3}}$	B1
	$\left(1-\frac{3}{8}x\right)^{-\frac{1}{3}}=1+\left(-\frac{1}{3}\right)\left(-\frac{3}{8}x\right)+\frac{-\frac{1}{3}\left(-\frac{1}{3}-1\right)}{2!}\left(-\frac{3}{8}x\right)^2+\frac{-\frac{1}{3}\left(-\frac{1}{3}-1\right)\left(-\frac{1}{3}-2\right)}{3!}\left(-\frac{3}{8}x\right)^3+...$	M1
	$(8-3x)^{-\frac{1}{3}}=\frac{1}{2}+\frac{1}{16}x+\frac{1}{64}x^2+\frac{7}{1536}x^3+...$	A1 A1
		(4)
(b)	$\frac{1}{2}+\frac{1}{16}\left(\frac{2}{3}\right)+\frac{1}{64}\left(\frac{2}{3}\right)^2+\frac{7}{1536}\left(\frac{2}{3}\right)^3+...=\frac{2851}{5184}\Rightarrow\sqrt[3]{6}=\left(\frac{2851}{5184}\right)^{-1}=...$	M1
	$=\frac{5184}{2851}$ or $1\frac{2333}{2851}$	A1
		(2)
		Total 6

Note a misread of $(8-3x)^{\frac{1}{3}}$ can score a maximum of B1M1A0A0 M0A0

(a)

B1: Obtains $\frac{1}{2}(1\pm...x)^{-\frac{1}{3}}$. $8^{-\frac{1}{3}}$ must be evaluated. May be implied by further work e.g. $\frac{1}{2}\pm...$ provided this has not come from an incorrect method.

e.g. $(8-3x)^{-\frac{1}{3}}=\frac{1}{(8-3x)^{\frac{1}{3}}}=\frac{1}{2}+\frac{1}{\frac{1}{2}\sqrt[3]{3}x}+\frac{1}{\frac{1}{2}\left(\sqrt[3]{3}x\right)^2}+...$ is B0.

M1: Attempts the binomial expansion of $(1 + kx)^n$ to get the **third** or **fourth** term **unsimplified** with an acceptable structure.

The correct binomial coefficient must be combined with x^2 or x^3 which may be unsimplified.

Look for $\frac{-\frac{1}{3}\left(-\frac{1}{3}-1\right)}{2!}...x^2$ or $\frac{-\frac{1}{3}\left(-\frac{1}{3}-1\right)\left(-\frac{1}{3}-2\right)}{3!}...x^3$ o.e. (you do not need to be concerned with their $-\frac{3}{8}$ which may be 1 or e.g. if they have a negative sign in front of the whole term)

Do not allow notation such as $\begin{pmatrix}-\frac{1}{3}\\1\end{pmatrix}$, $\begin{pmatrix}-\frac{1}{3}\\2\end{pmatrix}$ unless interpreted correctly in further work.

May be implied by correct coefficients with x^2 or x^3

A1: For 2 correct **simplified** terms of $\frac{1}{16}x$, $\frac{1}{64}x^2$, $\frac{7}{1536}x^3$ (allow x^1 for x for this mark) which may be listed.

Condone if coefficients are given as decimals i.e. $0.0625x$, $0.015625x^2$, $0.004557...x^3$

Also allow for $\left(1-\frac{3}{8}x\right)^{-\frac{1}{3}}=1+\frac{1}{8}x+\frac{1}{32}x^2+\frac{7}{768}x^3+...$ (Note B0M1A1A0 is possible)