

Q	Marking Instructions	AO	Marks	Typical Solution
10	Begins proof by contradiction, assumes that $\sqrt[3]{2}$ is rational OE	AO3.1a	M1	Assume $\sqrt[3]{2}$ is rational
	Uses language and notation correctly to state initial assumptions	AO2.5	B1	$\sqrt[3]{2} = \frac{a}{b}$ , $a$ and $b$ have no common factors
	Manipulates fraction including cubing.	AO1.1a	M1	$\Rightarrow \sqrt[3]{2}b = a$ $\Rightarrow 2b^3 = a^3$
	<b>Deduces</b> $a$ is even	AO2.2a	R1	$\therefore a$ is even
	<b>Deduces</b> $b$ is even	AO2.2a	R1	let $a = 2d$ then $2b^3 = 8d^3$ $\Rightarrow b^3 = 4d^3$ $\therefore b$ is even
	Explains why there is a contradiction	AO2.4	E1	Hence, $a$ and $b$ have a common factor of 2. This is a contradiction.
	Completes rigorous argument to show that $\sqrt[3]{2}$ is irrational	AO2.1	R1	$\therefore$ the assumption that $\sqrt[3]{2}$ is rational must be incorrect and it is proved that $\sqrt[3]{2}$ is an irrational number
	<b>Total</b>		<b>7</b>	