Q	Marking instructions	AO	Marks	Typical solution
10(a)	Uses a correct counter example to show that the cube of an irrational number can be rational.	2.1	R1	$\left(\sqrt[3]{5}\right)^3 = 5$ which is rational.
	Subtotal		**1**	

Q	Marking instructions	AO	Marks	Typical solution
10(b)	States there exists an irrational number whose cube root is rational OE	2.1	M1	Assume there exists an irrational number whose cube root is rational.
	Forms an equation of the form $\sqrt[3]{k} = \frac{a}{b}$	2.5	M1	Then $\sqrt[3]{k} = \frac{a}{b}$ where k is irrational and $a, b \in \mathbb{Z},\ b \neq 0$
	Deduces $k = \frac{a^3}{b^3}$ and states that k is rational OE	2.2a	A1	$k = \frac{a^3}{b^3}$, this is rational
	Completes reasoned argument to prove that the cube root of any irrational number must be irrational. All terms must be fully defined including $b \neq 0$ Accept simplest form as fully defined	2.1	R1	This is a contradiction as a number cannot be both irrational and rational, therefore there can be no irrational number whose cube root is rational. So, the cube root of any irrational number must be irrational.
	Subtotal		**4**	

	Question 10 Total		**5**	