

Q	Marking instructions	AO	Mark	Typical solution
9	<p>Begins proof by contradiction. This may be evidenced by: stating assumption at the start “the sum is rational”</p> <p>Or</p> <p>Sight of “contradiction” later as part of argument.</p>	3.1a	M1	<p>Assume m is rational and n is irrational and their sum is rational.</p> <p>Then</p>
	<p>Forms an equation of the form rational + irrational = rational with the rationals written algebraically</p> $\frac{a}{b} + n = \frac{c}{d}$ <p>n must clearly be irrational and not written as an algebraic fraction and not a specific value.</p>	2.5	M1	$\frac{a}{b} + n = \frac{c}{d}$ <p>Where a, b, c and d are all integers.</p> $n = \frac{c}{d} - \frac{a}{b}$ $= \frac{bc - ad}{bd}$
	<p>Manipulates their equation to show that n is rational</p>	1.1b	A1	<p>∴ n is rational, which is a contradiction.</p>
	<p>Explains or demonstrates why there is a contradiction</p>	2.4	E1	<p>So the original statement is false and the sum of a rational and irrational must be irrational.</p>
	<p>Completes rigorous argument to prove the required result including correct initial assumptions</p> <p>Where a, b, c and d are all integers.</p>	2.1	R1	
Total			5	