STEP III, 2005, Q6 EC

6 This question was tackled by most candidates. Almost all could do the first part; most could show that $u+\frac{b}{u}$ is a root of the equation, by a variety of methods, and relate their results to the final equation. Fewer could convincingly establish the quadratic satisfied by the other two roots of the cubic, and startlingly few could accurately solve this quadratic to get roots in terms of ω with, in particular, very many sign errors.