

## STEP II, 2022, Q7 EC

### Question 7

Only a small number of candidates attempted this question, and many of those struggled to achieve good marks.

In part (i)(a) many candidates failed to spot the useful way of writing  $w^5$  and were unable to secure any marks. Many of those who achieved few marks overall were able to obtain a mark by writing down an expression for  $f(w) - g(w)$ . Of those who did score well, many lost a mark for not stating that  $g(w) > 0$  when dividing through by it in their inequalities. While there were some successful alternative solutions to part (i)(c), many of those who did not mimic part (i)(b) and tried to deduce the result directly were unsuccessful.

In part (ii)(a) some candidates failed to observe that the coefficients of the polynomial were real when stating that the roots occur in complex conjugate pairs. The remainder of part (ii) was dealt with easily by most candidates, including many of those who had otherwise obtained few parts.



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