

## STEP III, 2010 Q5 EC

5. This question resembled question 3 in popularity and success. Most were able to derive line equations reliably, and address the intersection problem. (Those that used an equally valid vector formulism had a low success rate for no apparent reason.) Very few addressed whether or not factors that were being divided by were non-zero. Mistaking  $m$  for  $n$  and vice versa, careless algebraic errors, and overlooking which equation represented which line caused problems in trying to find  $T$ . The idea of explaining the construction verbally in the last part exposed that many candidates are not used to expressing a formal argument in words. The nicety of this question is that whilst all candidates will have encountered geometrical constructions involving straight edge and compass, few will have previously met one that only requires a straight edge.



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