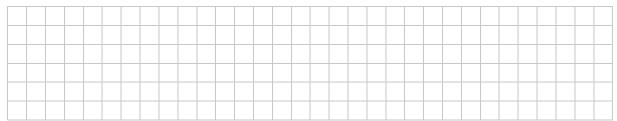
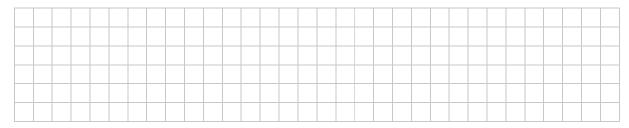
- **(b)** A survey was carried out on behalf of a television station to investigate the popularity of a certain show.
 - (i) A random sample of 1560 television viewers was surveyed. Find the margin of error of the survey. Give your answer as a percentage, correct to 1 decimal place.



(ii) In the survey, 546 of the 1560 viewers surveyed said that they liked the show. Use your answer to part **b(i)** above to create a 95% confidence interval for the percentage of viewers who liked the show.



(iii) An executive for the television station had claimed that 40% of viewers liked the show. Use your answer to part **b(ii)** above to conduct a hypothesis test, at the 5% level of significance, to test the executive's claim. State your null hypothesis, your alternative hypothesis and give your conclusion in the context of the question.

