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91584



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

Level 3 Mathematics and Statistics (Statistics), 2017

91584 Evaluate statistically based reports

9.30 a.m. Monday 27 November 2017
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Evaluate statistically based reports.	Evaluate statistically based reports, with justification.	Evaluate statistically based reports, with statistical insight.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

Pull out Resource Booklet 91584R from the centre of this booklet.

Show ALL working.

Make sure that you have the Formulae and Tables Booklet L3–STATF.

If you need more room for any answer, use the space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

QUESTION TWO

Refer to **Report 2** in the resource booklet to answer the following questions.

(a) The report states that 500 dog owners were surveyed.

(i) Calculate the margin of error for this survey.

(ii) Explain why the margin of error should be included in statistical survey reports.

(b) Assume that the sample of New Zealand dog owners was representative of all New Zealand dog owners at the time of the survey.

Can a claim be made that over half of New Zealand dog owners have no idea what ingredients are in the food they feed their dog?

Using a relevant survey percentage provided in the report, construct a confidence interval, and interpret this interval as part of your answer.

QUESTION THREE

Refer to **Report 3** in the resource booklet to answer the following questions.

- (a) The survey states that the margin of error for both the 1992 and 2012 surveys was 3.6%.
 (i) If 1000 New Zealanders had been surveyed, the reported margin of error would be 3.2%.

Was the number of New Zealanders surveyed in 1992 higher or lower than 1000?
 Support your answer with statistical reasoning.

- (ii) Explain why it would be inappropriate to use the reported margin of error to construct an approximate 95% confidence interval for the percentage of New Zealanders in 1992 who supported spending on public transport.

- (b) The report states that for the 2012 survey “those supporting priority spending on public transport had grown to 48 per cent, compared with 37 per cent favouring roads”.

Could a claim be made that a higher percentage of New Zealanders in 2012 supported spending on public transport than spending on roads?

Construct ONE confidence interval, and interpret this interval as part of your answer.
