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SUPERVISOR'S USE ONLY

91584



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

QUESTION ONE

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Refer to **Report 1** in the resource booklet to answer the following questions.

Identify	and describe the explanatory and response variables for this study.				
Explana	tory variable:				
Respons	e variable:				
The report states that " dogs' stress levels decreased after listening to classical music"					
The repo	The report states that " dogs' stress levels decreased after listening to classical music". Explain why each dog's stress levels were measured twice				
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)	In terms of the design of the study (specifically the order of the conditions), what else			
	do you need to know before assessing this claim, and why?			
i)	A potential issue with a statistical study is extending the results inappropriately.			
	Discuss TWO potential issues with extending the results of this study to all dogs in rehoming centres.			
	1.			
	2.			

QUESTION TWO

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

(i)	report states that 500 dog owners were surveyed. Calculate the margin of error for this survey.
(-)	
(ii)	Explain why the margin of error should be included in statistical survey reports.
	me that the sample of New Zealand dog owners was representative of all New Zealan owners at the time of the survey.
dog o	owners at the time of the survey.
dog d Can are in Usin	owners at the time of the survey. a claim be made that over half of New Zealand dog owners have no idea what ingreding the food they feed their dog?
dog d Can are in Usin	owners at the time of the survey. a claim be made that over half of New Zealand dog owners have no idea what ingreding the food they feed their dog? g a relevant survey percentage provided in the report, construct a confidence interval,
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)	One component to consider when evaluating statistical survey reports is who funded the study.
	Explain why there is a potential issue with who funded this survey.
()	Discuss ONE potential non-sampling error for this survey and how it could cause bias.

QUESTION THREE

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

(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 199 who supported spending on public transport.
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	report states that for the 2012 survey "those supporting priority spending on public sport had grown to 48 per cent, compared with 37 per cent favouring roads".
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Cou spen	sport had grown to 48 per cent, compared with 37 per cent favouring roads". Id a claim be made that a higher percentage of New Zealanders in 2012 supported
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	he headline for the report states "Poll shows preference for public transport over motorways and roads has doubled in 20 years".	
E h	valuate what statistical evidence, if any, has been presented in the report to support this eadline.	
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QUESTION NUMBER	Extra paper if required. Write the question number(s) if applicable.	
NUMBER		l