3

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91584



Level 3 Mathematics and Statistics (Statistics), 2016

91584 Evaluate statistically based reports

2.00 p.m. Thursday 24 November 2016 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.

The repo	rt claims that "price discounts are more effective than nutrition education in
	ing people to buy healthier foods".
Explain	whether this study is an observational study or an experiment, and the implication
Explain this for t	whether this study is an observational study or an experiment, and the implication his claim.
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a potential issue with	a statistical study is exte	nding the results inappropr	riately.
Discuss ONE potentia	al issue with extending th	e results of this study.	

QUESTION TWO

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Refer to **Reports 2a** and **2b** in the resource booklet to answer the following questions. Report 2a is a media report that was based on the information provided in Report 2b.

	The reported margin of error is 1.7%.				
	(i)	Show how this margin of error was calculated.			
	(ii)	Explain why the margin of error should be included in statistical survey reports.			
0)	The media report states that 59% of the survey respondents definitely or possibly favoured a reduction in the serving sizes of sugar drinks. Construct a confidence interval using this percentage, and interpret this confidence interval.				
		struct a confidence interval using this percentage, and interpret this confidence interval.			
		struct a confidence interval using this percentage, and interpret this confidence interval.			
		struct a confidence interval using this percentage, and interpret this confidence interval.			

alts from Report 2b, an question headed "Limit"

QUESTION THREE

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

	The report states the margins of error for the 2006 and 2008 surveys were 3.8% and 4.5% respectively.			
Ex	xplain why the reported margins of error are different for the two surveys.			
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	A reader of this report has made the following statement to a friend: "A higher proportion of males in the 2008 survey parked in disability parks without a permit than females".			
	reader of this report has made the following statement to a friend: "A higher proportion o ales in the 2008 survey parked in disability parks without a permit than females".			
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m Ev	ales in the 2008 survey parked in disability parks without a permit than females". valuate what statistical evidence, if any, has been presented in the report to support this			
m Ev	ales in the 2008 survey parked in disability parks without a permit than females". valuate what statistical evidence, if any, has been presented in the report to support this			
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m Ev	ales in the 2008 survey parked in disability parks without a permit than females". valuate what statistical evidence, if any, has been presented in the report to support this			

	Assume that the samples of cars/people obtained in 2006 and 2008 are representative of all cars/people in New Zealand in those years.
	Can a claim be made that the percentage of New Zealand cars/people who used a disability park without displaying a current permit was lower in 2008 compared to 2006?
(Construct ONE confidence interval, and interpret this interval as part of your answer.
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I	The heading for this report is "Higher fines discourage disability parking abuse". Discuss ONE potential issue with the study design used for the 2008 survey, in respect to the
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0.15051011	Extra paper if required. Write the question number(s) if applicable.	
QUESTION NUMBER	Witto the question number(e) it approaches	