Assessment schedule: practice paper 2026

AS 91584 Evaluate statistically based reports · Vertex Academy practice paper, not an NZQA paper

QUESTION ONE

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)
(a)	n = 1100 MOE = $\frac{1}{\sqrt{1100}}$ = 0.0302 = 3.0% MOE needed: each random sample of 1100 gives a slightly different percentage	Correct MOE of 3.0% with working, OR a description in context of why the MOE is needed (sample to sample variation).		
(b)	57% ± 3.0% CI = [54.0%, 60.0%] Pretty sure 54.0% to 60.0% of all NZ adults use their phone in bed every night	Confidence interval correct, OR an inference statement in context from an incorrect interval.	Confidence interval correct AND an inference statement in context (population and variable).	
(c)	difference = 44% − 31% = 13% MOE = $\frac{2}{\sqrt{1100}}$ = 0.0603 = 6.0% CI = 13% ± 6.0% = [7.0%, 19.0%] all positive, so the claim is supported	MOE of 6.0% with clear method, OR a correct interval without clear working.	Confidence interval correct AND EITHER an inference statement in context OR a response to the claim in context.	
(d)	difference = 66% − 52% = 14% $\frac{1}{\sqrt{400}}$ = 0.0500 and $\frac{1}{\sqrt{700}}$ = 0.0378 average = 0.0439; MOE = 1.5 × 0.0439 = 0.0658 = 6.6% CI = 14% ± 6.6% = [7.4%, 20.6%] all positive, so the claim is supported	Average MOE (4.4%) or 1.5 × average MOE (6.6%) with clear method, OR a correct interval without clear working.	Confidence interval correct AND EITHER an inference statement in context OR a response to the claim in context.	Confidence interval correct AND an inference statement in context AND a response to the claim in context, with populations and variable evident.
(e)	leading question "Like most New Zealanders": pushes answers towards yes, 57% likely too high self-reported habit: embarrassment or poor recall, 57% could be too low or too high accept non-response or other valid sources linked to this survey	ONE source of non-sampling error identified in the context of this survey.	ONE source explained in context AND how it could affect the 57% result.	TWO sources explained in context, each with how it could affect the 57% result.

QUESTION TWO

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)
(a)	researchers allocated walk or sit, so it is an experiment explanatory: walk 10 minutes or sit 10 minutes after lunch response: concentration test score	Explains in context why this is an experiment, OR both variables described in context.		
(b)	other variables: sleep, food, caffeine, fitness, ability random allocation balances them across the two groups so a difference in mean score can be attributed to the walk	States that random allocation is needed for an experiment or to make the groups similar.	Clear explanation in context of how random allocation balances other variables that could affect the concentration scores.	
(c)	blind marker: expectations cannot bias the scores same test, same time: test difficulty and time of day are the same for both groups so the difference in means is more likely due to the walk	One feature explained in context.	Both features explained in context, each linked to the concentration scores.	
(d)	participants: volunteer university students in Hamilton, not a random sample of NZers young, possibly fitter or keener on exercise than average results extend only to students like these, not all New Zealanders		Describes ONE issue with extending the results, related to the claim.	Describes ONE issue AND discusses how it limits extending the results, using specific features of this study.
(e)	questionnaire: students chose how they travel, so observational other variables: living near campus, study time, age, work hours association only; the causal claim is not supported	States the finding is from an observational study OR that it cannot show cause and effect.	Explains in context why cause and effect cannot be concluded.	Evaluates the conclusion in context: observational study AND a specific other variable that could explain the higher grades AND a clear judgement on the claim.

QUESTION THREE

Part	Evidence	Achievement (u)	Merit (r)	Excellence (t)
(a)	target population: adult residents of Te Awa District sampling frame: people who see the council's Facebook page mismatch: non-Facebook residents excluded; non-residents can respond	ONE situation described in context where the target population and sampling frame do not match.		
(b)	Survey A: self-selected, so people with strong views respond supporters (cyclists) more motivated; link may be shared by cycling groups supporters over-represented, so 64% likely too high; B is random, 47%	Identifies Survey A as self-selected or not random.	Explains in context how self-selection could bias the result upwards compared with Survey B.	
(c)	$\frac{1}{\sqrt{600}} = 0.0408 = 4.1\%$; $12\% \pm 4.1\% = [7.9\%, 16.1\%]$ 12% is outside 30% to 70% rule of thumb overestimates the MOE, so the interval is too wide	Identifies that 12% is outside the 30% to 70% range.	Identifies 12% is outside the 30% to 70% range AND explains the rule of thumb overestimates the MOE (the interval is wider than it needs to be).	
(d)	MOE $= \frac{1}{\sqrt{600}} = 0.0408 = 4.1\%$ CI $= 47\% \pm 4.1\% = [42.9\%, 51.1\%]$ interval contains 50%, so a majority is not shown; the claim is not supported	MOE of 4.1% with clear method, OR a correct interval without clear working.	Confidence interval correct AND EITHER an inference statement in context OR a response to the claim in context.	Confidence interval correct AND an inference statement in context AND a response to the claim (not supported, as 50% is inside the interval), with population and variable evident.

(e)	$\frac{1}{\sqrt{2500}} = 0.02 = 2\%$ MOE only measures sampling error for a random sample Survey A is self-selected: bias is not reduced by a large sample 64% vs 47% differ by far more than 2%; the statement is misleading	Shows $1/\sqrt{2500} = 2\%$, OR states that Survey A is not a random sample.	Explains that the margin of error only applies to random samples, in context.	Evaluates the statement: MOE only applies to random samples AND a large self-selected sample is still biased, linked to this context (for example the gap between 64% and 47%).

Judgement for each question

N0	N1	N2	A3	A4	M5	M6	E7	E8
No response; no relevant evidence.	Attempts at least one part of the question.	1 of u	2 of u, or 1 of r	3 of u	1 of r and 1 of u	2 of r	1 of t	2 of t

Grade score out of 24 (each question's grade: N0 = 0 to E8 = 8): Not Achieved 0 to 7, Achieved 8 to 14, Merit 15 to 19, Excellence 20 to 24 (the 2025 exam's cut scores).