# Assessment schedule: practice paper 2026

AS 91946 Interpret and apply mathematical and statistical information in context · Vertex Academy practice paper, not an NZQA paper

## QUESTION ONE

| Part | Evidence | Achievement (u) | Merit (r) | Excellence (t) |
|---|---|---|---|---|
| (a) | 3 + 1 + 2 = 6<br>6 ÷ 30 × 100<br>20% of the commuter e-bikes cost $4,000 or more | Correct answer, 20% (6 out of 30). | | |
| (b) | 5,899 − 2,999 = 2,900<br>commuter UQ 3,799 < mountain LQ 4,999<br>means 3,412.33 > 2,999 and 6,525.67 > 5,899<br>IQR 3,799 − 2,499 = 1,300; 7,499 − 4,999 = 2,500<br>$2{,}900 \div (7{,}499 - 2{,}499) = 0.58 > \frac{1}{3}$<br>Mountain e-bikes tend to cost more than commuter e-bikes at this shop | One feature (centre, shift, shape or spread) described in context. OR a correct conclusion. | Two features described in context. OR one feature described in context AND a correct conclusion with valid justification that mountain e-bikes tend to cost more. | TWO features described in context with numerical evidence AND a correct conclusion with valid justification (no overlap of the boxes, or DBM/OVS) that mountain e-bikes tend to cost more. |
| (c) | one online shop only<br>one date, March 2026; sale prices unknown<br>only 30 of each type<br>Not reliable for all of NZ: one shop, one date, small samples | One reason stated. | One reason stated AND justified in context (why it could make the comparison misleading). | |
| (d) | 2019: 232; 2021: 356; 2025: 286 ($ million)<br>up 2019 to 2021, then down slowly<br>Q4 highest every year, e.g. 92 in 2025<br>Q3 lowest in most years, e.g. 56 in 2025; swing 36 since 2023<br>Q2 2020 = 22, Q3 2021 = 58<br>Rising then falling trend, Q4 peak and Q3 low every year, lockdown dips in 2020 and 2021 | One valid statement using a feature of the time series (trend, seasonal pattern or unusual value). | Two valid statements using features of the time series. OR one valid statement AND a reason explaining why it might happen (contextual knowledge or personal worldview). | Two valid statements using features of the time series, with numerical evidence, AND reasons explaining them (contextual knowledge or personal worldview). |

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| (e) | 294 ÷ 4 = 73.5; 286 ÷ 4 = 71.5<br>71.5 − 2 = 69.5<br>92 − 71.5 = 20.5<br>69.5 + 20.5 = 90<br>About $90 million in Q4 2026; fairly confident for one year ahead | Valid prediction for Q4 2026 made, with a reason from the data. | Valid prediction made AND justifies how confident they would be in it (steady pattern, short time ahead, possible changes). | |

## QUESTION TWO

| Part | Evidence | Achievement (u) | Merit (r) | Excellence (t) |
|---|---|---|---|---|
| (a) | medians 3,000 → 4,000 → 5,000 → 5,900 → 7,200<br>trend line slope 50<br>80 to 99 km: $3,200 to $7,000<br>55 km at $8,500<br>Positive linear relationship of moderate strength; scatter grows with range | One feature described in context. | Two different features described and interpreted in context. | |
| (b) | price = 50 × 80 + 500<br>= 4,000 + 500 = 4,500<br>80 to 99 km prices $3,200 to $7,000<br>About $4,500; only fairly confident because of the wide scatter | Correct price from the trend line, about $4,500. | Correct price AND a discussion of how confident they would be in the prediction, using the scatter, strength or data range. | |
| (c) | 3,180 × 0.9 × 1.15 = 3,291.30<br>3,291.30 + 150 + 59 = 3,500.30<br>3,699 − 200 = 3,499<br>3,450 ÷ 1.15 = 3,000<br>3,000 + 150 = 3,150 collected (3,185 delivered)<br>Spoke & Charge is cheapest at $3,150; Kiwi E-Ride ($3,499) if the 2-year warranty and service matter | Calculates the total cost at ONE shop, with communication. | Calculates the total cost at TWO shops, with communication. | Calculates the total cost at ALL THREE shops with clear working AND gives a justified recommendation AND considers personal worldviews. |

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| (d) | 22 × 2 × 3 = 132 km<br>50 × 132 + 500 = 7,100<br>4.20 × 10 = 42<br>220 ÷ 50 × 0.36 = 1.58<br>(7,100 + 150) ÷ 40.42 ≈ 179 weeks ≈ 3.9 years<br>3,150 ÷ 40.42 ≈ 78 weeks ≈ 1.7 years<br>Recommend the Urban 70 and charging each night: pays for itself in about 1.7 years | Finds the range needed (132 km) or the trend-line price. OR comments that a longer range costs more so the offers will not apply. OR makes a recommendation with a reason. | Uses the trend line to price a 132 km e-bike AND compares costs with the bus (weekly saving or payback) to justify a recommendation. | Prices both options with the weekly saving and payback times AND gives a justified recommendation (such as nightly charging with the Urban 70) that links Resource 2A's trend and Resource 2B's $4,000 offer limit. |

## QUESTION THREE

| Part | Evidence | Achievement (u) | Merit (r) | Excellence (t) |
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| (a) | 35% = 0.35<br>1840 × 0.35 = 644<br>About 644 people | Correct answer, about 644 people. | | |
| (b) | $\frac{1}{5}$ = 20% ≈ 21%<br>visitors to a cycling website<br>self-selected, not random<br>Headline not supported for all New Zealanders; low confidence | Identifies the 21% for bike or e-bike as about one in five, with a reason. | Identifies the 21% AND justifies how confident they would be in the claim (biased or self-selected sample from a cycling website). | |
| (c) | car 31% → 44% → 52% → 55%<br>bus 29% under 25 vs 14% to 18% older<br>bike 22% to 24% under 55, 15% at 55+<br>25 to 39: car 44%, bike 24%, bus 18%<br>Hana most likely drives (44%), with biking second (24%) | ONE similarity or difference linked to age. OR a clearly justified suggestion for Hana. | TWO similarities or differences linked to age. OR one similarity or difference AND a clearly justified suggestion for Hana. | TWO similarities or differences linked to age AND a clearly justified suggestion for Hana. |

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| (d) | age 40 to 54: car 52%, bike 21%<br>5 to 10 km: car 41%, bike 28%, bus 20%<br>78 − 6 = 72 per week<br>2,999 ÷ 72 ≈ 42 weeks<br>Recommend an e-bike: saves about $72 a week and pays for itself in about 42 weeks | Basic comment on TWO pieces of evidence from Resource 3. | Links BOTH the age group and the distance group to recommend a way to get to work. | Links both the age group and the distance group to recommend a way to work AND uses the costs (and a price guide, stating the resource) to estimate the saving or payback, with justification. |
| (e) | n = 1840<br>cycling website, self-selected<br>group sizes not given; costs self-reported<br>Only somewhat confident: good size, but biased and missing details | Identifies that 1840 is a reasonable sample size, or states a valid concern. | Justifies why we need to be cautious about using the results (biased or self-selected sample, unknown group sizes, self-reported costs). | |

## Judgement for each question

| N0 | N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|---|
| No response; no relevant evidence. | One question attempted towards a solution. | 1u | 2u | 3u | 1r | 2r | 1t | 2t |

Grade score out of 24 (each question's grade: N0 = 0 to E8 = 8): Not Achieved 0 to 6, Achieved 7 to 12, Merit 13 to 18, Excellence 19 to 24 (the 2025 exam's cut scores).