

FREE PRACTICE PACK

Victorian Selective Entry Sample

15 original multiple-choice questions, two writing prompts and comprehensive worked solutions.

MATHEMATICS + QUANTITATIVE	READING + VERBAL
7 questions Suggested time: 11 minutes	8 questions Suggested time: 12 minutes
Number, algebra, probability, patterns and data interpretation.	One original passage plus logic and language reasoning.

How to use this sample

Complete the multiple-choice questions without checking the solutions. Record one answer for every question. Then mark the paper, study each explanation and write down whether an error came from knowledge, reasoning, reading or time pressure.

This is an independently created familiarisation resource. It is not an official ACER sample, past paper or prediction of the live examination.

SECTION 1

Mathematics + Quantitative Reasoning

7 questions Suggested time: 11 minutes

1. A school orders 18 boxes of equipment at \$24 per box. A 12.5% discount is applied to the boxes, then a \$27 delivery fee is added. What is the final cost?

A \$381	B \$405
C \$432	D \$459

2. A container is initially $\frac{3}{5}$ full of red counters. After 12 red counters are added, red counters make up $\frac{2}{3}$ of all counters. How many counters were initially in the container?

A 48	B 54
C 60	D 72

3. One integer is chosen at random from 1 to 12 inclusive. What is the probability that it is divisible by 2 or divisible by 3?

A $\frac{1}{2}$	B $\frac{7}{12}$
C $\frac{2}{3}$	D $\frac{3}{4}$

4. The sequence 4, 9, 19, 39, 79, ... follows the same rule at every step. What is the next term?

A 119	B 139
C 158	D 159

Use the following table to answer Questions 5-7.

Time	8 am	10 am	12 noon	2 pm	4 pm
Solar output (kW)	1.2	3.4	5.8	4.9	2.1

5. During which interval did the solar output increase at the greatest average rate?

A 8 am to 10 am	B 10 am to 12 noon
C 12 noon to 2 pm	D 2 pm to 4 pm

6. To estimate energy produced from 8 am to 4 pm, assume the output shown at the start of each two-hour interval stays constant for that interval. What is the estimate?

A 28.2 kWh	B 29.4 kWh
C 30.6 kWh	D 34.8 kWh

7. The output at 12 noon is approximately what percentage greater than the output at 4 pm?

A 64%	B 176%
C 276%	D 370%

Quantitative strategy check

1	Underline the unit and the comparison being requested before calculating.
2	When intervals are equal, compare the size of the changes before dividing by time.
3	For percentage change, divide the change by the original value - not the final value.

SECTION 2

8 questions Suggested time: 12 minutes

Read the passage, then answer Questions 8-14.

For most of human history, night arrived as a genuine change of environment. Darkness limited travel, concealed danger and altered the behaviour of animals. Electric lighting changed that relationship so successfully that darkness is now often treated as a defect to be corrected. Streets, car parks and sports grounds glow long after their last users have gone home.

The benefits are obvious. Lighting can help pedestrians see obstacles, make public spaces easier to navigate and allow evening activity. Yet the assumption that more light always produces more safety is less secure than it appears. Strong glare can reduce contrast, while badly aimed lamps illuminate bedroom windows and the sky rather than the path below. A bright pool of light may even make the darkness beyond it harder to see.

The effects extend beyond people. Many nocturnal insects navigate partly by keeping a distant source of light, such as the moon, at a constant angle. A nearby lamp disrupts that strategy: the insect repeatedly corrects its course and may spiral around the light until exhausted. Because insects pollinate plants and feed birds and bats, this small confusion can travel through an ecosystem.

One regional town tested a different approach. Between midnight and 5 am, it dimmed selected streetlights to 40% of their usual output, while keeping crossings and busy intersections fully lit. Researchers compared insect activity, electricity use and reports of night-time incidents with data from the previous year. Energy use fell sharply, and more insects were recorded in nearby vegetation rather than around lamps. Reports of incidents did not increase, although the trial was too short to reveal rare events with confidence.

The trial does not prove that every street should be darker. A crowded transport interchange and an empty industrial road do not present the same risks. Nor does darkness affect every resident equally: people with impaired vision may depend on consistent lighting. The useful question is therefore not whether light is good or bad, but where, when and how much light is needed. Intelligent lighting is an uneasy compromise - bright enough to support human activity, restrained enough to preserve the night it replaces.

8. Which statement best expresses the central idea of the passage?

A Street lighting should be removed from regional towns.	B Lighting decisions should balance human needs with environmental effects.
C Insects are more important than human safety at night.	D All modern lighting is brighter than necessary.

9. Why does the author explain how nocturnal insects navigate?

A To show why insects are attracted to the moon	B To explain a mechanism by which artificial light disrupts behaviour
C To prove that all insects respond identically to light	D To argue that lamps should copy moonlight

10. What can most reasonably be inferred from the town trial?

A Dimming selected lights may reduce energy use without automatically increasing reported incidents.	B Crime decreased because insects moved into vegetation.
C Every resident preferred the dimmer lighting.	D Five hours of darkness is enough to restore an ecosystem.

11. In the final sentence, 'an uneasy compromise' suggests that intelligent lighting

A is simple to design once costs are known	B completely satisfies every group
C requires balancing benefits that can conflict	D should make residents feel uncomfortable

12. Which new evidence would most weaken the town's conclusion about safety?

A Electricity prices rose during the trial.	B A nearby town recorded more insects around lamps.
C Many incidents during the trial were not reported because the reporting system failed.	D Residents used less electricity inside their homes.

13. The author's tone is best described as

A balanced and analytical	B mocking and dismissive
C alarmed and sensational	D nostalgic and sentimental

14. Which claim is directly supported by the passage?

A Brighter lighting always makes distant darkness easier to see.	B The trial kept every streetlight at 40% output.
C Insect disruption can affect other species in an ecosystem.	D People with impaired vision prefer unlit streets.

15. Four students - J, K, L and M - present on Monday, Tuesday, Wednesday and Thursday, one per day. J presents before L. K presents on neither Monday nor Thursday. M presents immediately after K. Who must present on Monday?

A J	B K
C L	D M

WRITING SAMPLE

Suggested practice: 20 minutes
each

Task 1 - Persuasive

A local council has funding for one major improvement near a secondary school. It can build either a landscaped community garden or a multi-storey car park.

Write a persuasive piece arguing which option the council should choose.

You may consider community benefit, safety, traffic, the environment, cost and long-term value. Develop a clear position rather than listing disconnected points.

Task 2 - Imaginative

Write an imaginative piece that begins with the following sentence:

The map was correct, but the place had changed.

Your writing should establish a purposeful setting, develop a clear situation and control the reader's attention. The prompt may be interpreted literally or symbolically.

PLAN

Central idea / position

Key development 1

Key development 2

Ending / final impact

Answer sheet

Shade one answer for each question before checking the solutions.

Question	A	B	C	D	Question	A	B	C	D
1	■	■	■	■	9	■	■	■	■
2	■	■	■	■	10	■	■	■	■
3	■	■	■	■	11	■	■	■	■
4	■	■	■	■	12	■	■	■	■
5	■	■	■	■	13	■	■	■	■
6	■	■	■	■	14	■	■	■	■
7	■	■	■	■	15	■	■	■	■
8	■	■	■	■					

Score record

Mathematics + Quantitative	____ / 7
Reading + Verbal	____ / 8
Total	____ / 15

Worked solutions

Do not stop at the letter. Compare your reasoning with the method and identify exactly where your approach diverged.

1. B - \$405

Skill: Percentages and multi-step arithmetic

The boxes cost $18 \times \$24 = \432 . A 12.5% discount is one eighth of the price: $\$432 / 8 = \54 . The discounted cost is $\$432 - \$54 = \$378$. Add \$27 delivery: $\$378 + \$27 = \$405$.

2. C - 60

Skill: Fractions and algebraic modelling

Let the initial total be n . Initially there are $3n/5$ red counters. After adding 12 red counters, the fraction is $2/3$: $(3n/5 + 12)/(n + 12) = 2/3$. Cross-multiplying gives $9n + 180 = 10n + 120$, so $n = 60$.

3. C - 2/3

Skill: Probability and overlapping sets

Multiples of 2 are 2, 4, 6, 8, 10, 12. Multiples of 3 are 3, 6, 9, 12. Combine the sets without counting 6 and 12 twice: {2, 3, 4, 6, 8, 9, 10, 12}. There are 8 favourable outcomes from 12, so $8/12 = 2/3$.

4. D - 159

Skill: Number patterns

Each term is double the previous term, then add 1: $4 \times 2 + 1 = 9$, $9 \times 2 + 1 = 19$, and so on. Therefore $79 \times 2 + 1 = 159$.

5. B - 10 am to 12 noon

Skill: Rates of change

Each interval lasts two hours. The increases are 2.2 kW from 8-10 am and 2.4 kW from 10 am-noon. After noon the output falls. Because the intervals have equal length, the larger increase also gives the greater average rate: **10 am to 12 noon**.

6. C - 30.6 kWh

Skill: Interpreting tables and units

Use the output at the start of each interval: $1.2 \times 2 + 3.4 \times 2 + 5.8 \times 2 + 4.9 \times 2 = 2.4 + 6.8 + 11.6 + 9.8 = 30.6$ kWh. The 4 pm value begins after the required period, so it is not multiplied.

7. B - 176%

Skill: Percentage change

The increase from 2.1 kW to 5.8 kW is 3.7 kW. Percentage greater means compare the increase with the original 4 pm value: $3.7 / 2.1 \times 100 = 176.2\%$, approximately **176%**. Option C gives 5.8 as a percentage of 2.1, which answers a different question.

8. B

Skill: Central idea

The passage accepts the practical benefits of lighting but also explains glare, wasted light and ecological disruption. Its conclusion calls for decisions about 'where, when and how much' light is needed. This is a balance, not a demand to remove all lighting.

9. B

Skill: Author's purpose

The navigation explanation supplies a cause-and-effect mechanism: insects use a distant light source to maintain direction, but a nearby lamp makes them repeatedly correct their course. This explains *how* artificial light alters behaviour.

10. A

Skill: Inference

The town used less energy and recorded no increase in reported incidents during the trial. The cautious wording 'may' and 'not automatically' respects the passage's warning that the trial was too short to establish rare-event safety with confidence.

11. C

Skill: Meaning in context

The compromise is 'uneasy' because different aims can pull in opposite directions: lighting should support human activity while limiting environmental harm. It does not fully satisfy every need.

12. C

Skill: Evaluating evidence

The trial's safety claim relies on reports of incidents. If many incidents were not recorded because the reporting system failed, the evidence used for comparison would be unreliable. The other options do not directly undermine the safety data.

13. A

Skill: Tone

The author presents benefits, limitations, ecological evidence and accessibility concerns, then reaches a qualified conclusion. This measured treatment is **balanced and analytical**, not sensational or dismissive.

14. C

Skill: Retrieving evidence

The passage states that insects pollinate plants and feed birds and bats, so disrupting insects can affect a wider ecosystem. Each other option directly contradicts the passage.

15. A - J

Skill: Constraint logic

If K is Tuesday, M must be Wednesday, leaving J on Monday and L on Thursday. If K is Wednesday, M must be Thursday; J must then be Monday so that J is before L on Tuesday. In every valid arrangement, **J presents on Monday**.

Writing guidance

Strong writing is judged as a whole. The following checklist is a practical review tool, not an official marking scheme.

Ideas and purpose	A clear position or central situation; ideas developed rather than repeated.
Structure	A deliberate opening, logical progression and an ending that resolves or sharpens the piece.
Language	Precise vocabulary, controlled sentences and tone suited to audience and purpose.
Control	Accurate spelling, punctuation and paragraphing; errors do not interrupt meaning.

Model response - Persuasive task

A car park promises convenience, but convenience is a poor use of rare public land when a school community needs something more lasting. The council should build the community garden: a place that improves health, strengthens local connections and continues creating value long after the ribbon is cut.

First, the garden would turn an unused block into a practical learning space. Students could measure plant growth, test soil, calculate water use and understand where food comes from. These are not decorative benefits. They connect science, mathematics and environmental responsibility to a place students can observe every week. Residents could also attend workshops or share produce, allowing one project to serve both the school and the wider neighbourhood.

A garden would also improve the area rather than merely storing more cars. Trees and planted beds provide shade, absorb rainwater and soften the heat created by concrete. A multi-storey car park, by contrast, would attract additional traffic precisely when students are crossing nearby roads. Even if it reduced the time drivers spend searching for spaces, it would still encourage more vehicles to enter a crowded school zone.

Supporters of the car park may argue that parking is an immediate problem. That concern deserves action, but a large new structure is not the only answer. Safer drop-off rules, timed parking, improved bicycle storage and better bus connections can address congestion without surrendering the entire site to cars.

Public money should create more than short-term convenience. A community garden would educate students, cool the neighbourhood and give residents a reason to work together. The council should choose the option that grows value instead of simply stacking vehicles.

Why this response works

It states a clear position immediately, develops distinct arguments, addresses the strongest counterargument and returns to the central comparison in the conclusion. The language is persuasive without relying on exaggerated claims.

Imaginative task - high-quality plan

Interpretation: A teenager returns to a coastal town using an old evacuation map after a storm has reshaped the shoreline.

Opening: Begin with the required sentence, then reveal one precise contradiction between map and landscape.

Development: The narrator searches for a marked safe house while landmarks disappear; physical uncertainty mirrors a changed family memory.

Turning point: A surviving object proves the destination has not vanished completely.

Ending: The narrator redraws one line on the map, showing acceptance rather than simply announcing it.

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