

NSW Opportunity Class Practice Paper 1

Thinking Skills

30 questions · 4 options each (A–D) · 30 minutes · No calculator

How to use this booklet

- There are 30 questions in this paper. For each question there are four possible answers, A, B, C and D. Choose the one correct answer.
- You will not lose marks for incorrect answers, so attempt all 30 questions.
- Calculators and dictionaries are not allowed. You have 30 minutes.

THINKING SKILLS — 30 QUESTIONS

Multiple choice · 30 minutes

Work through the questions in order, but do not spend too long on any one. Mark your best answer for every question, then check your work against the worked solutions.

1. A trophy went missing. Exactly one of 4 people took it. Exactly 3 of the 4 statements are true. Vic says: "It was not Max." Max says: "It was Vic." Gus says: "It was Quin." Quin says: "It was not me." Who took it?

- A Quin
- B Gus
- C Vic
- D Max

2. On an island, every person either always tells the truth or always lies. Yara says: "Fay and Ivan are either both truthful or both liars." Fay says: "Ivan is a liar." Ivan says: "Yara is telling the truth." How many of the three people are liars?

- A 1
- B 3
- C 0
- D 2

3. In a made-up world: All vel are pim; no pim is a rok; some rok are mip. Which statement MUST be true?

- A No rok is a vel
- B Some vel are mip
- C Some mip are vel
- D Some vel are not pim

4. Xavi, Dev, Tom, Sia and Pia each live on a different floor of a building with 5 floors, numbered 1 (lowest) to 5 (highest). Xavi does not live on floor 1. Dev and Sia live on neighbouring floors. Pia does not live on floor 2. Sia lives on a lower floor than Dev. Dev lives exactly three floors away from Tom. Which statement MUST be true?

- A Sia and Pia do not live on neighbouring floors
- B Sia lives on the top floor or the ground floor (floor 1)
- C Sia lives on floor 2
- D Xavi lives on a lower floor than Sia

5. Each of 5 people either always tells the truth or always lies. Ivan says: "Exactly five of us are lying." Fay says: "Exactly four of us are lying." Pia says: "Exactly one of us is lying." Hana says: "Exactly two of us are lying." Quin says: "Exactly three of us are lying." Who is telling the truth?

- A Ivan
- B Pia
- C Fay
- D Hana

6. Nia, Zoe, Eli and Tom each like a different subject and own a different pet. The person who likes music also owns a cat. The person who likes science also owns a dog. Either Nia likes art or Eli owns a cat (or both). Either Eli likes art or Nia owns a dog (or both). Either Tom likes history or Eli owns a dog (or both). Either Eli likes art or Tom owns a rabbit (or both). What does Nia like?

- A music
- B science
- C art
- D history

7. These facts are all true. (1) If the heater is off, then the window is open. (2) The pump is running or the heater is off (or both). (3) The alarm is not set or the gate is open (or both). (4) If the gate is open, then the heater is off. (5) The pump is stopped. Which conclusion **MUST** be true?

- A the pump is stopped and the window is open
- B the heater is off and the gate is open
- C the alarm is set or the gate is closed
- D the heater is on and the gate is open

8. Greenfield Hospital introduced a hand-washing reminder system, and over the next year the rate of ward infections fell by 15%. The manager argues: "If we keep installing hand-washing reminders, the rate of ward infections will keep rising." The manager's argument depends on which assumption?

- A The change in the rate of ward infections was caused by luck.
- B Nothing else will change that cancels out the effect of the reminder system.
- C Other wards have not tried the reminder system.
- D The reminder system will become cheaper.

THINKING SKILLS — 30 QUESTIONS

Answers & worked solutions

Answer Key

1	C	2	D	3	A	4	A	5	C	6	B
7	A	8	B	9	B	10	D	11	C	12	D
13	A	14	B	15	A	16	B	17	B	18	D
19	D	20	C	21	A	22	B	23	A	24	A
25	C	26	C	27	D	28	C	29	D	30	B

1. A trophy went missing. Exactly one of 4 people took it. Exactly 3 of the 4 statements are true. Vic says: "It was not Max." Max says: "It was Vic." Gus says: "It was Quin." Quin says: "It was not me." Who took it? [Self-consistent truth values]

Correct answer: C — Vic

- Test each person as the culprit and count how many statements would then be true. We need exactly 3.
- If Vic did it: 3 statements are true. This matches.
- If Max did it: 1 statement is true. This does not match.
- If Gus did it: 2 statements are true. This does not match.
- If Quin did it: 2 statements are true. This does not match.
- Only Vic gives exactly 3 true statements.
- Why the other options are wrong:
- A (Quin): If Quin did it, the number of true statements would be 2, not 3.
- B (Gus): If Gus did it, the number of true statements would be 2, not 3.
- D (Max): If Max did it, the number of true statements would be 1, not 3.

LOS: TS1

KEY TAKEAWAY

Make a small table: culprits down the side, statements across the top, true or false in each cell.

2. On an island, every person either always tells the truth or always lies. Yara says: "Fay and Ivan are either both truthful or both liars." Fay says: "Ivan is a liar." Ivan says: "Yara is telling the truth." How many of the three people are liars? [Truth-teller and liar puzzles]

Correct answer: D — 2

- There are 8 ways to decide who is truthful and who lies. Test each against the statements:
- Yara truthful, Fay truthful, Ivan truthful: Fay's statement is false but Fay is truthful, so this fails.
- Yara truthful, Fay truthful, Ivan a liar: Yara's statement is false but Yara is truthful, so this fails.
- Yara truthful, Fay a liar, Ivan truthful: Yara's statement is false but Yara is truthful, so this fails.
- Yara truthful, Fay a liar, Ivan a liar: Fay's statement is true but Fay is a liar, so this fails.
- Yara a liar, Fay truthful, Ivan truthful: Yara's statement is true but Yara is a liar, so this fails.
- Yara a liar, Fay truthful, Ivan a liar: every statement is consistent with its speaker, so this works.
- Yara a liar, Fay a liar, Ivan truthful: Ivan's statement is false but Ivan is truthful, so this fails.