



**Test Papers
Hub.**

QCAA General Mathematics Practice Paper 1

Units 3 & 4 — Practice Examination

**Reading time 5 minutes · Working time 90 minutes · Section I: 6 multiple-choice ·
Section II: 33 marks · 39 marks in all**

How to use this booklet

- Reading time – 5 minutes. Working time – 90 minutes. Write using black pen. A QCAA-approved calculator and formula sheet may be used.
- Section I has 6 multiple-choice questions; Section II has 6 written questions. Show relevant mathematical reasoning and/or calculations.
- Worked solutions follow the paper: every question has step-by-step working and a key takeaway.

SECTION I

6 marks · Attempt Questions 1 – 6

Allow about 12 minutes for this section. Choose the best answer for each question.

1. A least-squares line is fitted to the data (x: 1, 3, 10, 11, 13, 19; y: 13, 9, -15, -18, -23, -40). Use it to predict y when x = 21, correct to one decimal place.

- A -42.1
- B -63.5
- C -47.1
- D 16.4

2. A five-number summary is: minimum 9, Q1 32, median 60, Q3 67, maximum 76. What is the interquartile range?

- A 28
- B 35
- C 67
- D 38

3. \$10000 is invested at 5% per annum compounded quarterly. How much interest has been earned after 2 years, to the nearest cent?

- A \$1144.86
- B \$11044.86
- C \$1000.00
- D \$1044.86

4. A directed network has source S and sink T with edge capacities: $S \rightarrow A$ 8, $S \rightarrow B$ 8, $A \rightarrow B$ 4, $A \rightarrow T$ 7, $B \rightarrow T$ 6. What is the maximum flow from S to T?

- A 13
- B 16
- C 19
- D 14

5. Sam deposits \$500 at the end of each month into an account paying 3% per annum compounded monthly. Find the future value after 5 years, to the nearest cent.

- A \$30000.00
- B \$32323.36
- C \$32823.36
- D \$580.81

6. London is at longitude 0°W and New York is at longitude 75°W . Each city keeps the time of the standard meridian given (15° of longitude per hour), what is the local time in New York when it is 18:00 in London?

- A 13:00
- B 23:00
- C 15:00
- D 10:30

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WORKED SOLUTIONS

Answers & worked solutions

Multiple-choice answer key

1 C 2 B 3 D 4 A 5 B 6 A

SECTION I

1. A least-squares line is fitted to the data (x: 1, 3, 10, 11, 13, 19; y: 13, 9, -15, -18, -23, -40). Use it to predict y when x = 21, correct to one decimal place. [Linear regression]

Correct answer: C — -47.1

- CAS linear regression: $y = -3.025x + 16.405$.
- At $x = 21$: $y = -3.025 \times 21 + 16.405 = -47.1$.
- Why the other options are wrong:
- A (-42.1): This is the correct answer (-47.1) plus 5: an extra 5 was added at the end of the calculation (an off-by-5 error).
- B (-63.5): Add the intercept.
- D (16.4): That is the intercept (y when $x = 0$).

LOS: Data analysis

KEY TAKEAWAY

Fit the line $y = a + bx$ on the CAS, then substitute the x-value; beware extrapolating far outside the data.

2. A five-number summary is: minimum 9, Q1 32, median 60, Q3 67, maximum 76. What is the interquartile range? [Five-number summary]

Correct answer: B — 35

- $IQR = Q3 - Q1 = 67 - 32 = 35$.
- Why the other options are wrong:
- A (28): That is only half the IQR.
- C (67): Check whether you need the IQR or the range.
- D (38): This is the correct answer (35) plus 3: an extra 3 was added at the end of the calculation (an off-by-3 error).

LOS: Data analysis

KEY TAKEAWAY

$IQR = Q3 - Q1$ (spread of the middle half); range = maximum - minimum.