

INDEPENDENT PRACTICE MATERIAL

Numeracy practice assessment

US 32406 | Apply mathematics and statistics in a range of everyday situations

Not an NZQA assessment. This independent paper is for practice and review. It does not predict an NZQA result and has no pass mark.

Working conditions

Most learners are expected to complete the CAA in about 60 minutes. This practice paper is untimed. A ruler, blank paper and a standard calculator may be used.

Attempt all 34 items. Write only an answer for numeric items. For explanation items, take a position or state a conclusion, use relevant mathematical or statistical evidence, and connect that evidence to your conclusion.

Outcomes sampled

Outcome 1	Formulate mathematical and statistical approaches to solving problems in everyday situations.
Outcome 2	Use mathematics and statistics to meet the numeracy demands of everyday situations.
Outcome 3	Explain mathematical and statistical responses to situations.

There is no aggregate score or achievement judgement in this paper. Use the separate schedule item by item.

QUESTION 1

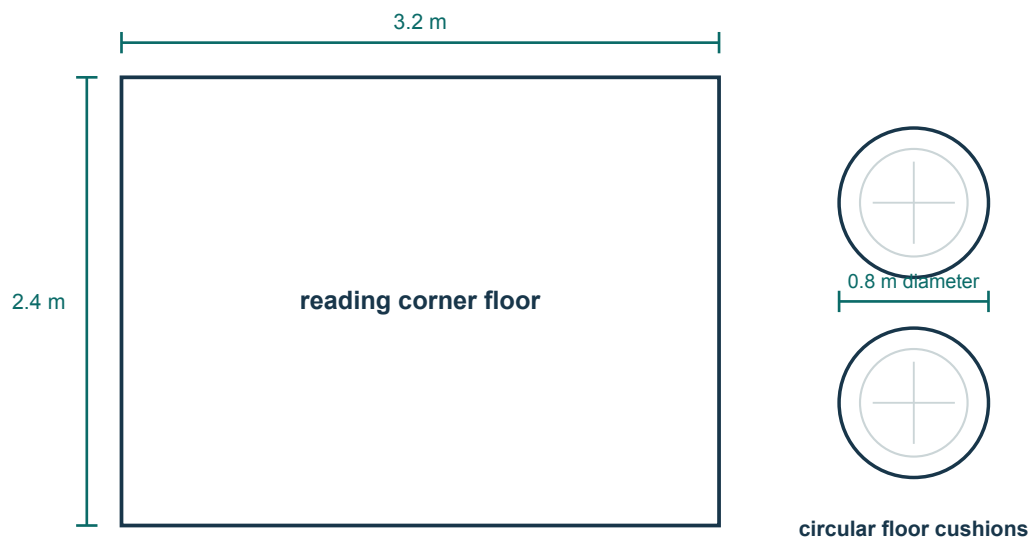
Community library

- 1(a) A study room is booked from 2:35 pm until 4:10 pm.

How many minutes is the booking?

 minutes

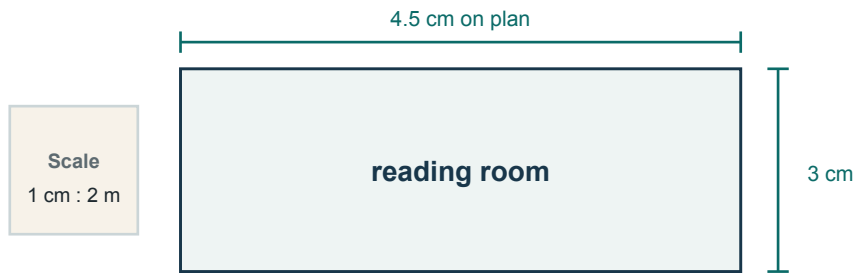
- 1(b) The diagram shows a rectangular reading corner and circular floor cushions at the same scale. The cushions must lie flat inside the reading corner without overlapping.



What is the greatest number of cushions that fit on the floor?

 cushions

- 1(c) The plan of a reading room uses the scale 1 cm represents 2 m. On the plan, the room is a rectangle 4.5 cm long and 3 cm wide.



What is the real floor area of the room, in square metres?

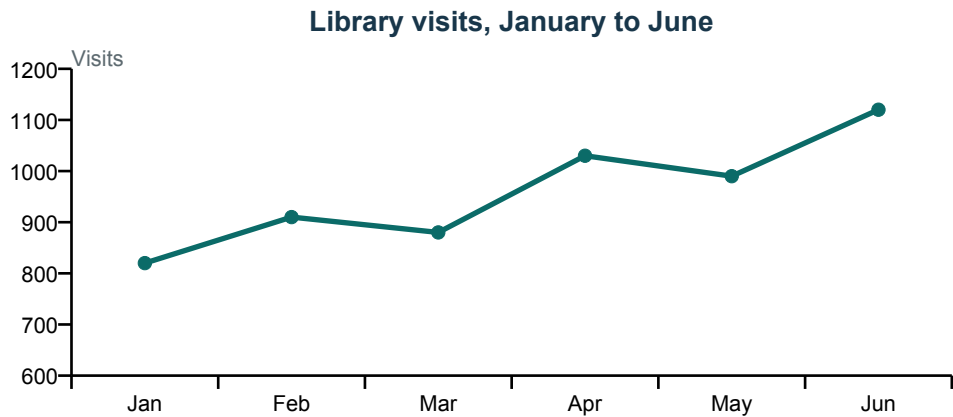
m²

- 1(d) A class returns 28 books. The average mass of each book is 0.42 kilograms.

What is the estimated total mass of the books, in kilograms?

kg

- 1(e) The graph shows visits to the library from January to June. A board report says, ‘Library visits increased every month from January to June.’



Do you agree with the report? Use at least three months and numbers from the graph to explain your answer.

Write your explanation below.

- 1(f) The table shows how many books fit on identical shelves.

Shelves	Book capacity
2	56
4	112
6	168
8	224

Which rule gives the book capacity from the number of shelves?

- (i) Add 28 to the number of shelves
- (ii) Multiply the number of shelves by 28
- (iii) Multiply the number of shelves by 56
- (iv) Subtract the number of shelves from 224

- 1(g)** A library trolley has a maximum load of 20 kilograms. There are 48 books with an average mass of 0.43 kilograms each.

Using the average mass as an estimate, can all 48 books be moved in one load? Explain your answer.

Write your explanation below.

QUESTION 2

Weekend market

- 2(a) Mandarins cost \$4.75 per kilogram. A bag has a mass of 2.8 kilograms.

How much does the bag cost?

\$

- 2(b) A drink is mixed using 3 cups of concentrate for every 5 cups of water.

How many cups of concentrate are needed for 7.5 cups of water?

cups

- 2(c) A small jar of tomato relish is 280 g and costs \$4.90. A large jar is 420 g and costs \$6.93. A sign says, 'The large jar is better value.'

Is the sign correct? Use the weights and prices to explain your answer.

Write your explanation below.

- 2(d) A rectangular market stall is 3.2 m long and 2.5 m wide. A ground sheet needs to cover the stall area plus 15% extra.

What area of ground sheet is needed, in square metres?

m²

- 2(e) A prize jar contains 9 blue tokens, 6 green tokens and 5 orange tokens. One token is chosen without looking.

What is the chance of choosing a green token? Give your answer as a percentage.

 %

- 2(f) A vendor says, 'Logo B is Logo A after a 180° rotation.'



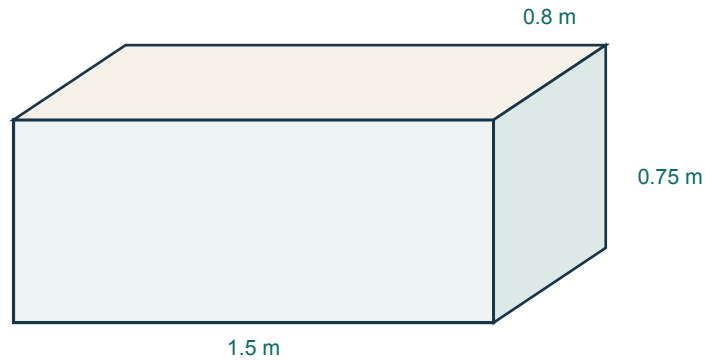
Is the vendor correct? Explain using the direction of the arrow and the position of the dot.

Write your explanation below.

QUESTION 3

Household water

- 3(a) A rectangular rainwater tank has internal dimensions 1.5 m by 0.8 m by 0.75 m. One cubic metre equals 1,000 litres.



How many litres does the tank hold when full?

litres

- 3(b) A shower uses 7.5 litres of water per minute. Three people each take an 8-minute shower.

How many litres of water are used altogether?

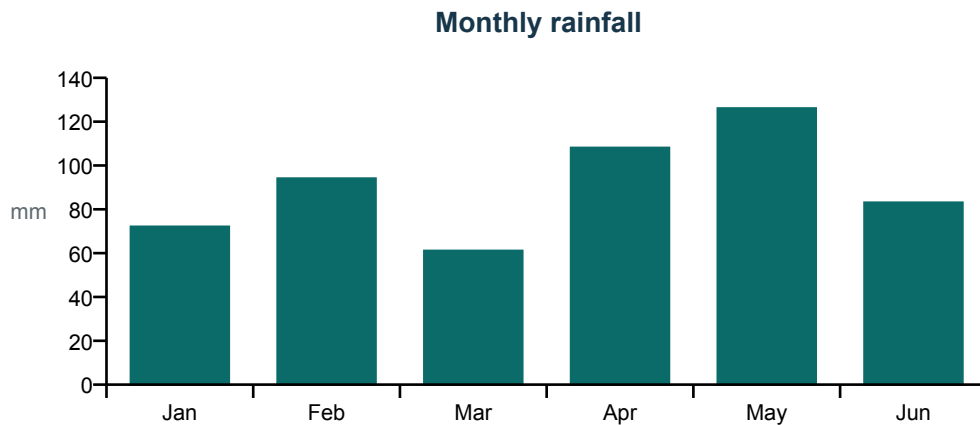
litres

- 3(c) An old toilet uses 9 litres for each flush. A replacement uses 6 litres for each flush.

What is the percentage reduction in water used per flush? Round to the nearest whole percent.

%

- 3(d)** The chart shows monthly rainfall. A notice says, 'Rainfall was higher in every autumn month, March to May, than in either January or February.'



Is the notice correct? Use values from the chart to explain your answer.

Write your explanation below.

- 3(e)** A full tank contains 900 litres. A household plans to use 75 litres each day. The rule $V = 900 - 75d$ gives the volume V , in litres, left after d days.

How many litres are left after 6 days?

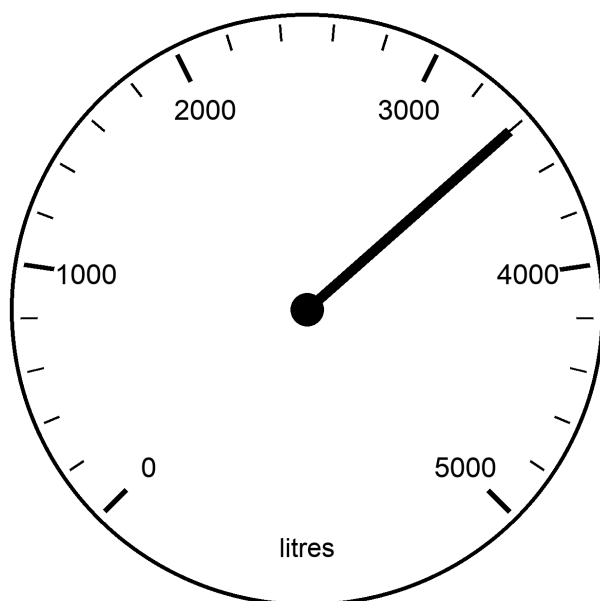
 litres

- 3(f)** A household has 750 litres of stored water. It expects to use 110 litres each day. No rain is forecast for 7 days.

Is there enough stored water for all 7 days? Show how you worked out your answer.

Write your explanation below.

- 3(g)** A second rainwater tank holds 5,000 litres when full. The gauge shows the water in it now.



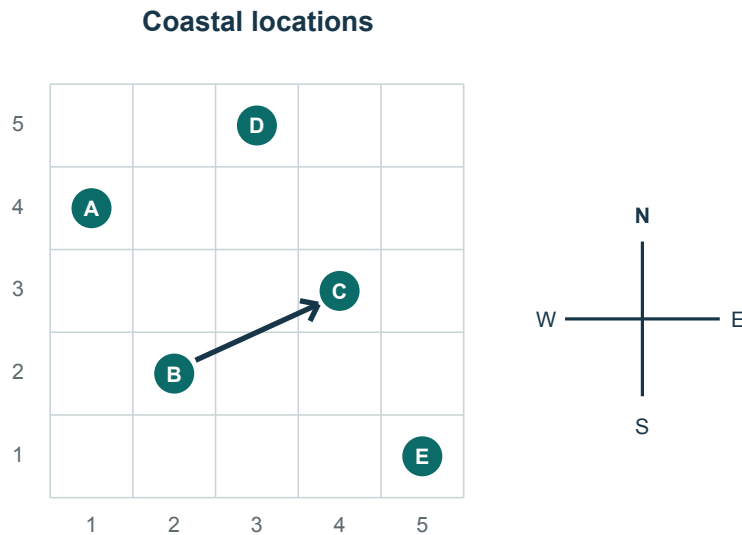
How many more litres are needed to fill this tank?

litres

QUESTION 4

Coastal walk

- 4(a) The map shows five marked locations. The first coordinate is read along the horizontal axis.



Which letter is at coordinate (4, 3)?

- (i) A
 - (ii) B
 - (iii) C
 - (iv) D
 - (v) E
- 4(b) On a printed route map, the walking route measures 7.2 cm. The scale is 1 cm represents 1.5 km.

What is the real route distance, in kilometres?

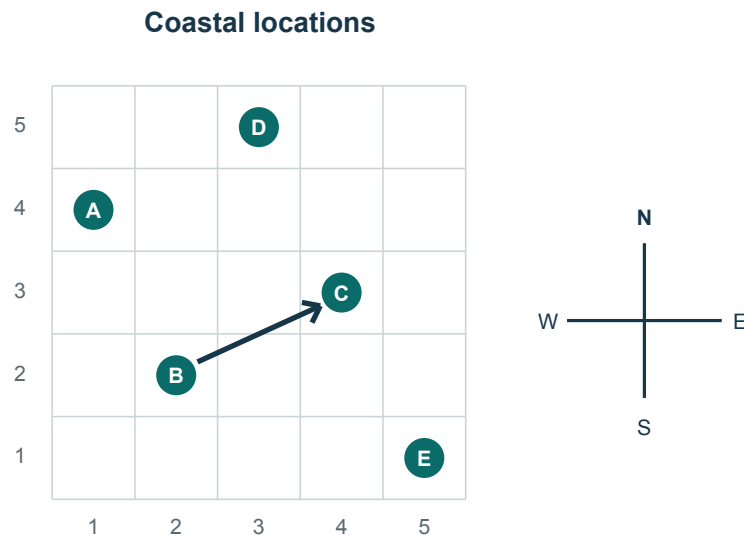
 km

- 4(c) A walker travels 10.8 km at an average speed of 4.5 km per hour.

How many minutes does the walking take?

 minutes

- 4(d) Use the same map. A walker travels in a straight line from B to C.



Which direction best describes the path from B to C?

- (i) North
 - (ii) East
 - (iii) North-east
 - (iv) South-west
 - (v) West
- 4(e) A park notice gives a 3 in 10 chance of rain. A phone forecast gives a 35% chance. A walker says, 'Those forecasts are about the same.'

Do you agree? Explain using a fraction, decimal or percentage.

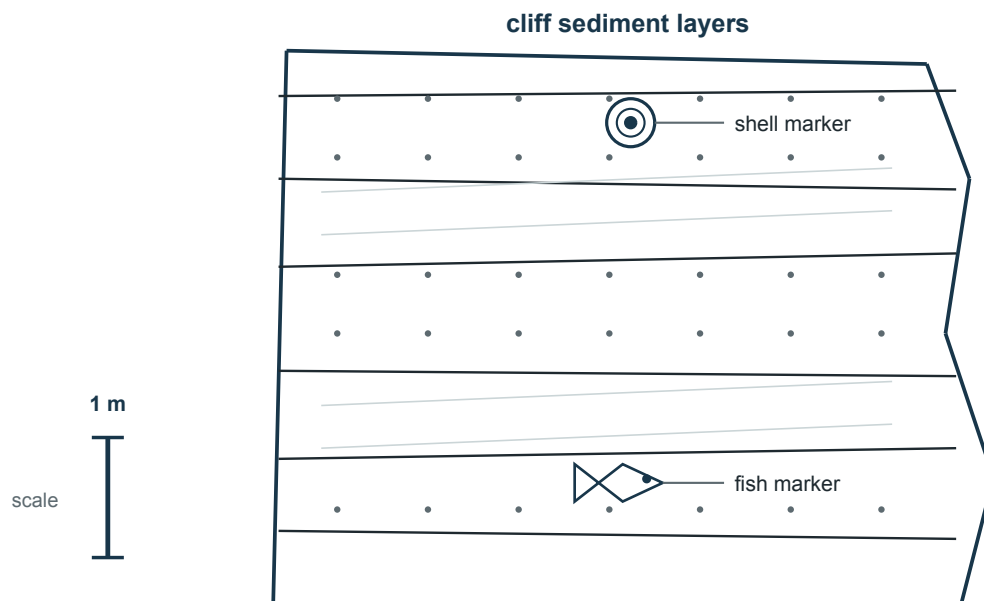
Write your explanation below.

- 4(f) The walk starts at 9:25 am. The walking time is 2 hours 24 minutes, and the group also takes a 35-minute break.

What time does the group finish?

 time

- 4(g) Sediment builds up at a steady rate of 1 centimetre every 40 years. The diagram is drawn to scale.



About how many years separate the shell marker and the fish marker?

 years

QUESTION 5

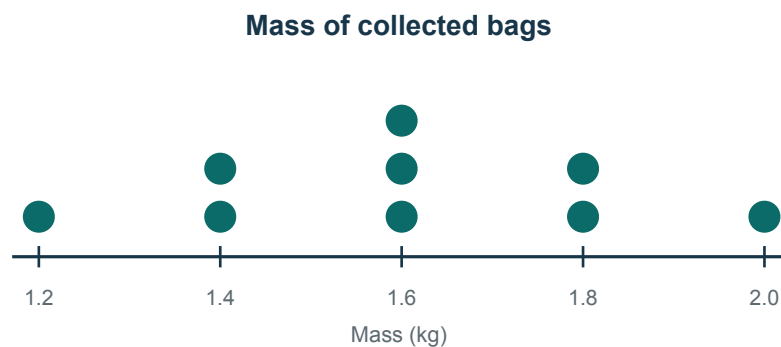
Beach clean-up

- 5(a) Volunteers collect 180 items. Two-fifths of the items are plastic.

How many plastic items are collected?

 items

- 5(b) The dot plot shows the mass of nine bags collected by one group.



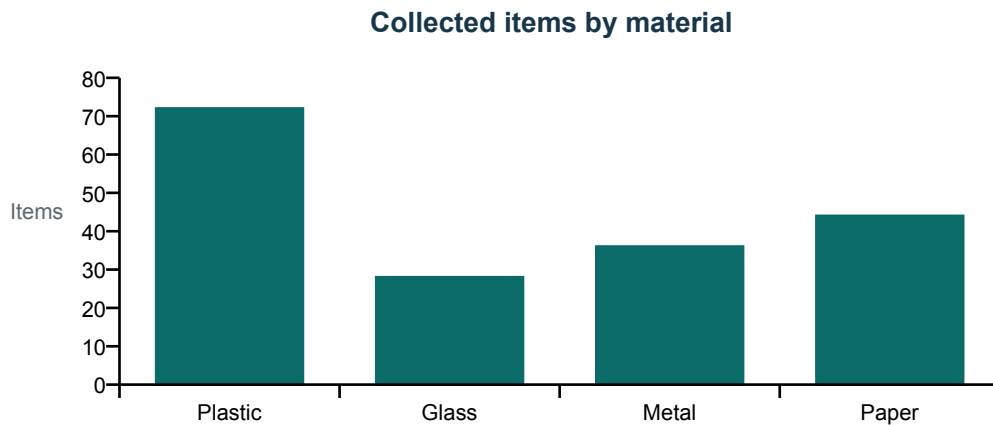
Which statement is correct?

- (i) The median mass is 1.4 kg
 - (ii) The range of the masses is 1.0 kg
 - (iii) The most common mass is 1.6 kg
 - (iv) Half of the bags are heavier than 2.0 kg
 - (v) The graph shows 10 bags
- 5(c) Another group fills 8 sacks. The average mass of each sack is 2.35 kg.

What is the total mass of the sacks, in grams?

 g

- 5(d) The chart shows the 180 collected items by material. An organiser says, 'More than half of all items were plastic or metal.'



Is the organiser correct? Use numbers from the chart to explain your answer.

Write your explanation below.

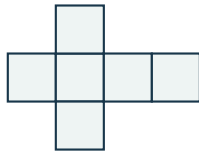
- 5(e) Two of the last 10 planned clean-up events were cancelled because of unsafe weather.

Based on these results, what is the estimated chance that the next event is cancelled? Give your answer as a percentage.

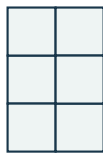
%

- 5(f) A collection box is a cube. Four possible nets are shown.

Possible cube nets



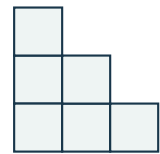
A



B



C



D

Which net will fold to make the cube?

- (i) A
 - (ii) B
 - (iii) C
 - (iv) D
- 5(g) Volunteers photograph a piece of driftwood next to a standard cleaning bucket.



bucket height 30 cm

About how long is the driftwood, in centimetres?

cm

End of assessment. Check that you have attempted every item. This practice paper does not produce a total, percentage or readiness decision.