

VCE VM Numeracy Unit 1

Chapter 7 — Unit 1 outcome demonstration assessment

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Chapter 7 Unit 1 outcome demonstration assessment — 7A Unit 1 — Outcome 1 assessment: numeracy in context

For teachers — read before using this paper. This chapter holds one assessment paper for each Unit 1 outcome. The papers give students a way to demonstrate what they know and can do. They **complement, and do not replace**, the school-designed assessment tasks that your school uses to judge the outcomes. The study design suggests that demonstrations of the Unit 1 outcomes are based on a selection from task types such as investigations and projects; a multimedia presentation, poster or report; and a portfolio. The study design's authentication rule applies to these papers:

Once a student has used a task to show an outcome of one VCE Vocational Major unit, the same task cannot be used again as evidence for a different unit or study: another VCE Vocational Major unit, a VET unit of competency, a VCE study or a Victorian Pathways Certificate unit (see the study design's sections on flexible delivery and on satisfactory completion).

Check the full task options and conditions in the VCAA *VCE Vocational Major Numeracy* study design — Unit 1, Outcome 1.

Source: VCAA, VCE Vocational Major Numeracy Study Design, retrieved 2026-10-08.

This paper (7A) demonstrates Outcome 1 — numeracy in context. It covers the four areas of study across all six numeracies. Schools choose three numeracies for the unit, so you may set only the items that suit the numeracies your class has chosen, or the whole paper if your class has worked through all six. Every item can be done with pen, paper and a basic calculator. Unit 1 results are reported as S (satisfactory) or N (not satisfactory).

Unit 1 Outcome 1 — numeracy in context. This paper covers the four areas of study (Number; Shape; Quantity and measures; Relationships) across the six numeracies (personal, civic, financial, health, vocational and recreational). Allowed materials: one basic calculator. Section A: 25 questions (25 marks). Section B: 5 questions (15 marks). Total: 40 marks. Time: about 65 minutes. Answer every question in the space provided. Show your working for every part. Only round where the question tells you to, and give each rounded answer at the precision asked for.

About the data in this paper. Every name, place, price, time and measurement in this paper is **made up** (not real): pretend businesses, pretend people and pretend numbers, built for this book so you can practise the mathematics. Nothing here is real data about a real business, person or place.

Section A — Multiple-choice questions

Choose the response that is correct for the question.

Question 1

A news website reports on a concert: 'Four thousand and sixty-five fans filled the park.' Which number has the same value as the number of fans written in words?

- A. 4605
- B. 4065
- C. 465
- D. 4056

Question 2

At a market stall, $\frac{3}{4}$ of the jars of jam have been sold. What percentage of the jars has been sold?

- A. 34 %
- B. 25 %
- C. 75 %
- D. 43 %

Question 3

A council report says that 12 480 kg of recycling was collected in March. What is 12 480 rounded to the nearest hundred?

- A. 12 400
- B. 12 500
- C. 12 000
- D. 12 480

Question 4

A toy costs \$ 45 before GST. GST adds 10% of the before-GST price. How much GST is added to the price of the toy?

- A. \$ 4.50
- B. \$ 4.05
- C. \$ 40.50
- D. \$ 49.50

Question 5

A power bill was \$ 180 last month. This month the bill has risen by 5%. What is the new amount of the bill?

- A. \$ 171
- B. \$ 185
- C. \$ 189
- D. \$ 198

Question 6

Party hats are sold in bags of 8 for \$ 6.00. At this rate, how much do 20 party hats cost?

- A. \$ 12.00
- B. \$ 16.00
- C. \$ 48.00
- D. \$ 15.00

Question 7

Nadia and Luke share an \$84 quiz-night prize in the ratio 1 to 2 (Nadia : Luke). How much money does Nadia receive?

- A. \$28
- B. \$42
- C. \$56
- D. \$84

Question 8

A job card says: buy 3 bags of cement at \$8.50 each, plus a \$12 delivery fee. Which number sentence finds the total cost?

- A. $3 \times 8.50 + 12$
- B. $3 \times (8.50 + 12)$
- C. $(3 + 8.50) \times 12$
- D. $3 + 8.50 \times 12$

Question 9

A carton of printer paper in a storeroom is the shape of a shoebox. Which 3D object best describes the carton?

- A. cylinder
- B. cube
- C. rectangular prism
- D. triangular prism

Question 10

A T-shirt design uses one large capital letter. Which letter has a mirror line — that is, it can be folded in half so the two halves match exactly?

- A. N
- B. S
- C. Z
- D. H

Question 11

On a building-site plan, 1 cm represents 2 m. A new wall is drawn 5 cm long on the plan. How long will the real wall be?

- A. 2.5 m
- B. 5 m
- C. 7 m
- D. 10 m

Question 12

A road sign has 4 equal sides and 4 right angles. What is the most precise name for the shape of the sign?

- A. rectangle
- B. square
- C. rhombus
- D. parallelogram

Question 13

A tub of vitamin powder has a mass of 1.2 kg. What is the mass of the tub in grams?

- A. 1200 g
- B. 12 g
- C. 120 g
- D. 12 000 g

Question 14

A rectangular garden bed is 4.5 m long and 2 m wide. What is the total distance around the outside of the garden bed?

- A. 6.5 m
- B. 9 m
- C. 11 m
- D. 13 m

Question 15

What is the area of a rectangular rug that is 2.4 m long and 1.5 m wide?

- A. 3.6 m²
- B. 7.8 m²
- C. 3.9 m²
- D. 36 m²

Question 16

A council builds a rectangular planter box that is 2 m long, 1.5 m wide and 0.4 m high. Potting mix is sold by the litre. How many litres of potting mix fill the planter box?

- A. 120 L
- B. 1200 L
- C. 12 000 L
- D. 1.2 L

Question 17

Beau's shift starts at 06:40. He works for 8 h 30 min with no break. What is Beau's finish time, in 24-hour time?

- A. 14:40
- B. 14:70
- C. 15:10
- D. 14:10

Question 18

Mitch's temperature is 39.4 °C. Overnight it falls by 1.7 °C. What is Mitch's temperature now?

- A. 41.1 °C
- B. 38.3 °C
- C. 37.7 °C
- D. 38.7 °C

Question 19

Sadie needs to measure out 250 mL of milk for a recipe. Which tool is best for this job?

- A. a tape measure
- B. a measuring jug
- C. a bathroom scale
- D. a thermometer

Question 20

A fencing supplier sells timber at \$3.50 per metre. What is the cost of 12 m of the timber?

- A. \$15.50
- B. \$35.00
- C. \$420.00
- D. \$42.00

Question 21

A coach travels 180 km in 2 hours at a steady speed. What is the speed of the coach, in km/hr?

- A. 90 km/hr
- B. 178 km/hr
- C. 360 km/hr
- D. 45 km/hr

Question 22

Pearl is paid \$ 23.50 per hour. She works 6 hours. How much money is Pearl paid for the 6 hours?

- A. \$ 29.50
- B. \$ 138.00
- C. \$ 141.00
- D. \$ 1410.00

Question 23

The table shows the votes received by three candidates in a local election.

Candidate	Votes (number)
Alvarez	1240
Chen	1515
Devi	980

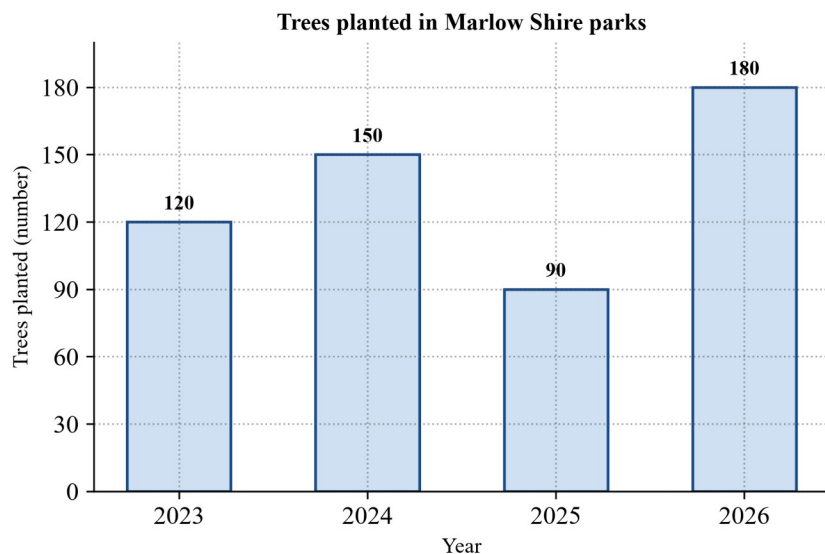
Made-up data: the candidate names and every number in the table are made up for this paper.

How many more votes did Chen receive than Alvarez?

- A. 535
- B. 275
- C. 2755
- D. 3735

Question 24

The bar chart shows the number of trees planted in parks in Marlow Shire over four years.



Made-up data: Marlow Shire is a made-up place, and every number in the chart is made up for this paper.

How many trees were planted in Marlow Shire in 2025?

- A. 120
- B. 150
- C. 180
- D. 90

Question 25

A soccer league scores its teams with the rule $P = 4w + 2d$, where P is the number of points, w is the number of wins and d is the number of draws. Cody's team finishes with $w = 6$ and $d = 3$. What is the value of P for Cody's team?

- A. 30
- B. 27
- C. 54
- D. 78

End of Section A

Section B — Written-response questions

Question 1 (3 marks)

Sadie is buying pasta for a family dinner. The shelf shows two boxes of the same pasta.

Box	Mass (g)	Price (dollars)
Small	500	\$ 2.20
Large	750	\$ 2.85

Made-up data: the prices and every number in the table are made up for this paper.

a. Find the unit price of the small box, in dollars per 100 g. 1 mark

b. Find the unit price of the large box, in dollars per 100 g. 1 mark

c. Which box is the better buy? 1 mark

Question 2 (3 marks)

Luke has a weekend job at a hardware store. He is paid \$ 24 per hour.

a. Last week Luke worked 15 hours. Find the amount he was paid for the 15 hours. 1 mark

b. On Sundays, Luke is paid time and a half. Find Luke's hourly rate on a Sunday. 1 mark

c. Luke saves 20% of one week's pay of \$ 360. Find the amount he saves. 1 mark

Question 3 (3 marks)

Erin gives her son children's medicine. The label says to take 5 mL every 6 hours.

a. Find the number of doses taken in 24 hours. 1 mark

b. Find the total amount of medicine, in mL, taken in one day (4 doses). 1 mark

c. The bottle holds 90 mL of medicine. Find how many whole days the bottle will last. 1 mark

Question 4 (3 marks)

A landscaping crew is laying a concrete path. The path is a rectangle 8 m long, 1.5 m wide and 0.1 m thick.

- a.** Find the area of the path. 1 mark

- b.** Find the volume of concrete needed for the path. 1 mark

- c.** Timber boards go all the way around the edge of the path. The timber costs \$6.50 per metre. Find the cost of the timber needed. 1 mark

Question 5 (3 marks)

Cody's soccer club is holding an end-of-season party at Cedar Hall. The hall charges a flat hire fee of \$80, plus \$6 for each person.

- a.** Find the cost of a party for 25 people. 1 mark

- b.** The club has a party budget of \$260. Does the party for 25 people fit within the budget? 1 mark

- c.** Find the greatest whole number of people who can come to the party for \$260. 1 mark

End of Section B

Chapter 7 Unit 1 outcome demonstration assessment — 7B Unit 1 — Outcome 2 assessment: problem-solving cycle task

A note for teachers. This Outcome 2 paper is practice. It complements — it does not replace — the school-designed assessment tasks (SACs) that your school uses to decide whether a student has demonstrated the outcome. Chapter 7 offers three practice papers: 7A (Outcome 1, numeracy in context), 7B (Outcome 2, this paper) and 7C (Outcome 3, the mathematical toolkit). The study design names investigations and projects, a multimedia presentation, poster or report, and a portfolio as SAC task types; your school chooses and adapts these to its own settings. The study design's authentication rule applies to this paper:

Once a student has used a task to show an outcome of one VCE Vocational Major unit, the same task cannot be used again as evidence for a different unit or study: another VCE Vocational Major unit, a VET unit of competency, a VCE study or a Victorian Pathways Certificate unit (see the study design's sections on flexible delivery and on satisfactory completion).

Check the full task options and conditions in the VCAA *VCE Vocational Major Numeracy* study design — Unit 1, Outcome 2.

Source: VCAA, VCE Vocational Major Numeracy Study Design, retrieved 2026-10-14.

Unit 1 — Outcome 2 (the problem-solving cycle). Section A has 10 multiple-choice questions, each worth 1 mark (10 marks). Section B has one real-world task, walked stage by stage through the four stages of the problem-solving cycle; it is worth 20 marks (Questions 11 to 14). The paper is out of 30 marks. Suggested time: 45 minutes. Answer every question in the space provided and show your working. Where an answer needs rounding, the question states the precision — round only as the question says.

Materials: pen, paper and a basic scientific calculator. No other technology is needed.

Choose the one best answer for each question and write its letter on the question paper.

About the data in this paper. Every name, price, time and measurement here is **made up** (not real). The situations are invented to give you practice; they do not report facts about any real person, business or place.

Section A — Multiple choice (10 marks)

Question 1

This book uses a problem-solving cycle with four stages. Which option lists the four stages in the order you use them?

- A. act on and use mathematics; identify the mathematics; communicate and report; evaluate and reflect
- B. identify the mathematics; act on and use mathematics; evaluate and reflect; communicate and report
- C. identify the mathematics; act on and use mathematics; communicate and report; evaluate and reflect
- D. evaluate and reflect; identify the mathematics; act on and use mathematics; communicate and report

Question 2

A task asks: 'Is \$90 enough to buy the fabric for the club banner?' Which option shows the two questions hiding inside this task?

- A. What colour is the banner, and where will it hang?
- B. How long will the fabric last, and is \$90 a cheap price?
- C. Who is selling the fabric, and do they deliver?
- D. What does the fabric cost, and is that cost \$90 or less?

Question 3

In stage 1, a task asks: ‘How much change will I get?’ Which operation do these words point to?

- A. subtraction
- B. addition
- C. multiplication
- D. division

Question 4

In stage 2, you estimate before you calculate exactly. Why do you estimate first?

- A. The estimate replaces the exact calculation when the numbers are big.
- B. The estimate is the number you report in stage 4.
- C. The estimate gives you a rough answer to check the exact answer against in stage 3.
- D. Estimating first makes the exact calculation faster to write down.

Question 5

Yusuf wants to estimate the cost of 8 m of ribbon at \$3.90 per metre. He rounds \$3.90 to the nearest dollar, then multiplies. What estimate does he get?

- A. \$32
- B. \$31.20
- C. \$24
- D. \$40

Question 6

Anya estimates that her shopping total will be about \$80. Her exact calculation gives \$78.50. What should Anya conclude in stage 3?

- A. The exact total must be wrong, because it is not exactly \$80.
- B. The estimate is the better answer, so she should report \$80.
- C. A shopping total cannot be checked, so she should skip stage 3.
- D. The exact total is reasonable — it is close to the estimate.

Question 7

A \$70 gift card pays for karaoke sessions that cost \$12 each. The division gives $70 \div 12 = 5.83$ (to 2 decimal places). How many whole sessions can the gift card pay for, and why?

- A. 6 sessions — 5.83 rounds up to 6.
- B. 5 sessions — 6 sessions would cost \$72, which is more than the \$70 on the card.
- C. 5.83 sessions — report exactly what the calculator shows.
- D. 5 sessions — every division answer must be rounded down.

Question 8

Your result must reach a sponsor who cannot come to the club meeting and will read it next week. Which format is the best choice for the report?

- A. A spoken summary given to whoever is in the room at the time.
- B. A photo of the calculator screen showing the final number.
- C. A short written report, in full sentences, with the numbers and their units.
- D. A quick sketch with no labels or numbers.

Question 9

The exact cost of an order is \$31.20. Which sentence reports this result correctly?

- A. The order costs \$31.20.
- B. The order costs \$31.2.
- C. 31.2
- D. The order costs around \$31.

Question 10

In stage 3, Malik's check fails — his exact answer is nothing like his estimate. What should Malik do?

- A. Report the exact answer anyway; the estimate does not matter.
- B. Change the estimate until it matches the exact answer.
- C. Skip stage 3 and go straight to stage 4.
- D. Go back to an earlier stage, find the mistake, and work forward through the stages again.

End of Section A

Section B — The problem-solving cycle task (20 marks)

The task: the under-16s' away game at Pioneer Park

The under-16 team of the Banksia Bay Football Club plays an away game at Pioneer Park. Talia, the team manager, organises the trip. She needs to check two things: that the team arrives before the game starts, and that the bus hire fits inside the club's budget. Walk through the four stages of the problem-solving cycle with Talia by answering Questions 11 to 14 in order.

About the data in this section. The club, the trip and the numbers here are **made up** (not real): a pretend club and pretend numbers, built for this book so you can practise the problem-solving cycle. Nothing here is real data about a real business, person or place.

The bus must be booked at least two weeks ahead, and the canteen at Pioneer Park closes at 5 pm. The table below gives the information for the mathematics.

Information	Value
Distance from the home ground to Pioneer Park (one way)	75 km
Speed of the bus (steady average speed)	60 km/hr
Departure time from the home ground	1:10 pm
Game start time	3:00 pm
Bus hire time (return trip plus waiting	3 hours

Information	Value
time)	
Bus hire rate	\$85 per hour
Club-member discount on the hire	20 % off the hire cost
Club budget for the hire	\$220
People travelling	22 (18 players and 4 helpers)

Made-up data: the trip details and every number in the table are made up for this section.

Question 11 (5 marks)

Stage 1 — Identify the mathematics.

a. State the two questions that this task needs to answer. 1 mark

b. Write down the two numbers from the table that Talia needs to find the time for the journey to Pioneer Park. 1 mark

c. Write down one piece of information in the description above the table that is not needed for the mathematics. 1 mark

d. Write a short plan: list the steps, in order, that Talia will take to check that the bus hire fits inside the \$220 budget. 2 marks

Question 12 (5 marks)

Stage 2 — Act on and use mathematics.

a. Estimate the hire cost before the discount by rounding \$85 to \$90. Give your estimate. 1 mark

b. Calculate the time for the journey to Pioneer Park, as a decimal number of hours. 1 mark

c. The bus leaves the home ground at 1:10 pm. What time does the team arrive at Pioneer Park? *Prompt: 0.25 of an hour is 15 minutes.* 1 mark

d. Calculate the hire cost after the 20 % discount. 2 marks

Question 13 (5 marks)

Stage 3 — Evaluate and reflect.

a. The exact hire cost before the discount is \$255. Compare it with your estimate from Question 12a. Is the exact cost reasonable? Explain briefly. *Prompt: an answer is reasonable when it is close to the estimate and makes sense in the story.* 2 marks

b. Use your arrival time from Question 12c. Does the team arrive before the 3:00 pm start? How many minutes before the start is that? 2 marks

c. Does the hire cost after the discount fit inside the \$220 budget? State how you know, and state how much money is left over. 1 mark

Question 14 (5 marks)

Stage 4 — Communicate and report.

a. Write one sentence that reports whether the bus hire fits inside the budget. Include the cost after the discount, with units. 2 marks

b. The club's summary sheet splits the hire cost after the discount, \$204.00, equally between the 22 people travelling. How much does each person pay, correct to the nearest cent? 2 marks

c. Name one format Talia could use to present the results to the club committee, and say why that format suits this audience. 1 mark

End of Section B

Chapter 7 Unit 1 outcome demonstration assessment — 7C Unit 1 — Outcome 3 assessment: mathematical toolkit

A note for teachers. This Outcome 3 paper is practice. It complements — it does not replace — the school-designed assessment tasks (SACs) that your school uses to decide whether a student has demonstrated the outcome. Chapter 7 offers three practice papers: 7A (Outcome 1, numeracy in context), 7B (Outcome 2, the problem-solving cycle) and 7C (Outcome 3, this paper — the mathematical toolkit). The study design names investigations and projects, a multimedia presentation, poster or report, and a portfolio as SAC task types; your school chooses and adapts these to its own settings. The study design's authentication rule applies to this paper:

Once a student has used a task to show an outcome of one VCE Vocational Major unit, the same task cannot be used again as evidence for a different unit or study: another VCE Vocational Major unit, a VET unit of competency, a VCE study or a Victorian Pathways Certificate unit (see the study design's sections on flexible delivery and on satisfactory completion).

Check the full task options and conditions in the VCAA *VCE Vocational Major Numeracy* study design — Unit 1, Outcome 3.

Source: VCAA, VCE Vocational Major Numeracy Study Design, retrieved 2026-10-08.

This paper (7C) asks students to identify and use appropriate mathematical tools: analogue tools and scale reading, digital tools (calculators, spreadsheets and apps), accuracy and appropriate precision, checking inputs and outputs, staying safe online, and choosing the right display. No item requires technology — every item can be done with pen, paper and a basic calculator. Unit 1 results are reported as S (satisfactory) or N (not satisfactory).

Unit 1 — Outcome 3 (the mathematical toolkit). Section A has 12 multiple-choice questions, each worth 1 mark (12 marks). Section B has 2 short-answer questions, each worth 4 marks (8 marks; Questions 13 and 14). The paper is out of 20 marks. Suggested time: 30 minutes. Answer every question in the space provided and show your working. Where an answer needs rounding, the question states the precision — round only as the question says.

Materials: pen, paper and a basic scientific calculator. No other technology is needed.

Choose the one best answer for each question and write its letter on the question paper.

About the data in this paper. Every name, price, time and measurement here is **made up** (not real). The situations are invented to give you practice; they do not report facts about any real person, business or place.

Section A — Multiple choice (12 marks)

Question 1

A gardener needs to measure a straight fence line that runs 40 m across an open paddock. Which tool is the best choice for this job?

- A. a 30 cm ruler
- B. a tape measure
- C. a trundle wheel
- D. a spirit level

Question 2

A kitchen dial scale has labels at 500 g and 1000 g, with 5 small spaces between the two labels. The needle sits 2 small spaces past the 500 g label. What mass does the scale show?

- A. 502 g
- B. 600 g
- C. 750 g
- D. 700 g

Question 3

A ferry timetable shows a departure time of 19:20 on a 24-hour display. What is this time on a 12-hour clock?

- A. 7:20 am
- B. 7:20 pm
- C. 9:20 pm
- D. 19:20 pm

Question 4

A market stall holder records her takings at the end of each day. She wants the running total for the week to update itself every time a new day is added. Which digital tool is the best choice?

- A. a calculator
- B. a unit converter app
- C. a spreadsheet
- D. a map and trip app

Question 5

A spreadsheet keeps hours in column B, the hourly rate in column C and the pay in column D. Cell D2 holds the formula $=B2 * C2$. Cell B2 holds 5 and cell C2 holds \$22.40. What does cell D2 show?

- A. \$27.40
- B. \$112.00
- C. the formula $=B2 * C2$
- D. \$1 120.00

Question 6

In a spreadsheet, cell B3 holds the hours worked on Tuesday (7), cell C3 holds the hourly rate (\$22.50) and cell D3 holds the formula $=B3 * C3$. The hours in cell B3 are changed from 7 to 4. What does cell D3 show now?

- A. \$157.50
- B. \$26.50
- C. nothing, until the formula in D3 is typed again
- D. \$90.00

Question 7

A delivery van travels 240 km in 3.2 hours. Before calculating the speed in km/hr, the driver estimates $240 \div 3 = 80$. The calculator then shows $240 \div 3.2 = 75$. What does the estimate tell the driver about the calculator's answer?

- A. 75 is close to the estimate 80, so 75 km/hr is a reasonable answer
- B. 75 does not equal 80, so the calculator must be wrong
- C. The calculator is always right, so making the estimate was a waste of time
- D. The answer must be exactly 80 km/hr, because the estimate used 3 hours

Question 8

Three workmates share a \$95 tool hire equally. The calculator shows $95 \div 3 = 31.6666666$. How much does each workmate pay, to the nearest cent?

- A. \$31.66
- B. \$31.6666666
- C. \$31.67
- D. \$31.70

Question 9

A recipe needs exactly 5 mL of vanilla essence. Which tool can show this amount?

- A. a 1 L measuring jug with marks every 25 mL
- B. a set of measuring spoons
- C. a kitchen scale with 1 g marks
- D. a bathroom scale with 100 g marks

Question 10

Tom measures a shelf with a tape measure marked only in centimetres. The end of the shelf sits just past the 86 cm mark. Which record of the measurement is honest — it does not claim more accuracy than the tool can give?

- A. 86 cm
- B. 86.54 cm
- C. 86.0 cm
- D. 85.999 cm

Question 11

A school club raised money from three activities: half from a cake stall, one quarter from a raffle and one quarter from a car wash. The club wants a display that shows each activity as a part of the one total raised. Which display is the best choice?

- A. a line graph
- B. a bar chart
- C. a table
- D. a pie chart

Question 12

Dani gets this text message: ‘SpeedyPower: Your power bill is overdue. Pay \$35.50 within 24 hours at speedypower-bills.xyz or your power will be cut off.’ Which list gives only the warning signs that this message is a scam?

- A. the pressure of a 24-hour deadline, and a web address that is not the company’s own
- B. the \$35.50 amount, and the word ‘power’
- C. the fact that the message is about Dani’s power bill
- D. there are no warning signs — bills do arrive by text message

End of Section A

Section B — Short-answer questions (8 marks)

Question 13 (4 marks)

A community garden group sells bags of potatoes at a market stall. Mina weighs one bag on a dial scale. The scale has labels at 1 kg and 2 kg, with 5 small spaces between the two labels. The needle sits 3 small spaces past the 1 kg label.

- a. Find the value of one small space, in grams. 1 mark

- b. What mass does the scale show, in grams? 1 mark

- c. Write this mass in kilograms. 1 mark

- d. Before weighing, Mina estimated the bag at about 1.7 kg. Does the scale reading support her estimate? Give one reason. 1 mark

Question 14 (4 marks)

Ruby’s weekly pay is kept in a spreadsheet. The grid below shows part of the sheet. Each day’s pay is worked out as hours multiplied by the rate.

	A	B	C	D
1	Day	Hours	Rate (\$/hr)	Pay (\$)
2	Monday	5.5	\$23.00	=B2 * C2
3	Tuesday	4	\$23.00	=B3 * C3
4	Total			=SUM (D2 : D3)

Made-up data: Ruby’s hours, rate and pay sheet are invented for this paper.

- a. What number does cell D2 show? 1 mark

- b. What number does cell D4 show? 1 mark

c. Ruby's Tuesday hours change from 4 to 6.5. What number does cell D3 show now?

1 mark

d. Ruby types her Monday pay into a calculator again, but she presses 55 instead of 5.5. The calculator shows \$1 265.00. Use your answer to part **a.** to explain how you know this result is wrong.

1 mark

End of Section B

Chapter 7 Unit 1 outcome demonstration assessment — Answers and fully-worked solutions

This section gives the answers and fully-worked solutions for the three Unit 1 outcome-demonstration papers in this chapter: 7A (Outcome 1 — numeracy in context), 7B (Outcome 2 — the problem-solving cycle) and 7C (Outcome 3 — the mathematical toolkit). Work each paper first, then check your thinking here. Where a question asked for a rounded answer, the question stated the precision, and the working restates that precision at the rounding step; full precision is carried through every step before it. As the papers say, every name, place, price and number in them is made up for practice.

7A — Answers

Section A (multiple choice)

Questions

										1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
n	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5

A	B	C	B	A	C	D	A	A	C	D	D	B	A	D	A	B	C	C	B	D	A	C	B	D	A
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Answers

Rounding notes. Question 3 rounds to the nearest hundred, as the question asked: the tens digit 8 is 5 or more, so round up — 12 480 rounds to 12 500. Section B Question 3c asks for whole days: $90 \div 20 = 4.5$, and only whole days count, so the answer is 4 days. Every other answer in this paper is an exact value.

Section B (written response)

Q1. (a) \$0.44 per 100 g (b) \$0.38 per 100 g (c) the large box

Q2. (a) \$360.00 (b) \$36.00 per hour (c) \$72.00

Q3. (a) 4 doses (b) 20 mL (c) 4 whole days

Q4. (a) 12 m² (b) 1.2 m³ (c) \$123.50

Q5. (a) \$230.00 (b) yes — \$30 spare (c) 30 people

7A — Fully-worked solutions

Section A (multiple choice)

Question	Answer	Working
1	B	Four thousand and sixty-five is 4 thousands, 0 hundreds, 6 tens and 5 ones, so the number is 4065. (4605 puts 6 in the hundreds and 0 in the tens, 465 leaves out the thousands, and 4056 swaps the tens and the ones.) Answer B.
2	C	Three quarters as a percentage: $\frac{3}{4} \times 100 = 75\%$. (34 % and 43 % just reuse the digits 3 and 4, and 25 % is the share NOT sold — $\frac{1}{4}$ of the jars.) Answer C.
3	B	Round 12 480 to the nearest hundred: the tens digit is 8, and 8 is 5 or more, so round up — the answer is 12 500. (12 400 rounds down when the tens digit says up, 12 000 is the nearest thousand, and

Question	Answer	Working
		12 480 is the unrounded number.) Answer B.
4	A	GST adds 10 % of the before-GST price: $\frac{10}{100} \times 45 = 4.5$, so the GST is \$4.50. (\$4.05 uses 9 % instead of 10 %, \$40.50 is the price with the GST taken off, and \$49.50 is the total price including GST — not the GST itself.) Answer A.
5	C	A rise of 5 % keeps 105 % of the bill: $\frac{105}{100} \times 180 = 189$, so the new bill is \$189. Two steps works too: 5 % of \$180 is \$9, and $180 + 9 = 189$. (\$171 takes 5 % off, \$185 adds \$5 instead of 5 %, and \$198 adds 10 %.) Answer C.
6	D	Value of one hat = price $\div$ number of hats = $6.00 \div 8 = 0.75$; then multiply up: $20 \times 0.75 = 15$, so 20 hats cost \$15.00. (\$12.00 is two bags — only 16 hats, \$16.00 uses \$0.80 per hat instead of \$0.75, and \$48.00 multiplies \$6.00 by the 8 hats in a bag.) Answer D.
7	A	The ratio 1 to 2 gives $1 + 2 = 3$ equal parts in all: one part is $84 \div 3 = 28$. Nadia takes 1 part, so she receives \$28. (\$42 splits the prize into 2 parts because the ratio has 2 numbers, \$56 is 2 parts — Luke's share — and \$84 is the whole prize.) Answer A.
8	A	Three bags at \$8.50 each is 3×8.50 , and the \$12 delivery fee is added once: $3 \times 8.50 + 12 = 25.50 + 12 = 37.50$, so the total is \$37.50. (Option B charges the delivery fee on every bag: $3 \times (8.50 + 12) = 61.50$; option C multiplies 11.50 by 12: $(3 + 8.50) \times 12 = 138$; option D multiplies before adding: $3 + 8.50 \times 12 = 105$.) Answer A.
9	C	A shoebox shape has six rectangular faces, so the carton is a rectangular prism. (A cylinder has circular ends, a cube has equal square faces on every side — a shoebox's faces are not all equal — and a triangular prism has triangular ends.) Answer

Question	Answer	Working
10	D	C. Apply the fold test: H folds in half — across and down — and the two halves match exactly, so H has a mirror line. N, S and Z fail the fold test: they turn onto themselves but do not fold onto themselves, so they have turn symmetry only. Answer D.
11	D	1 cm represents 2 m, so 5 cm represents $5 \times 2 = 10$ m. (2.5 m divides instead of multiplying, 5 m copies the plan length without scaling up, and 7 m adds 5 and 2.) Answer D.
12	B	Four equal sides and four right angles is the property list of a square — the most precise name. (A rectangle has four right angles but its sides need not all be equal, a rhombus has four equal sides but no right angles, and a parallelogram guarantees neither.) Answer B.
13	A	kg to g steps down to a smaller unit, so multiply by 1000: $1.2 \times 1000 = 1200$ g. (12 g and 120 g slip the decimal point, and 12 000 g multiplies by 10 000.) Answer A.
14	D	Perimeter goes all the way around: $P = 2 \times (l + w) = 2 \times (4.5 + 2) = 2 \times 6.5$ m. (6.5 m is only half the way around, 9 m is 2×4.5 — the two lengths only — and 11 m is $4.5 + 2 + 4.5$ — it forgets the second width.) Answer D.
15	A	Area = $l \times w = 2.4 \times 1.5 = 3.6$ m². (7.8 m² is the perimeter, $2 \times (2.4 + 1.5)$, 3.9 m² adds the length and width instead of multiplying, and 36 m² slips the decimal point — it is 24×1.5.) Answer A.
16	B	Volume $= l \times w \times h = 2 \times 1.5 \times 0.4 = 1.2$ m³. The bridge to litres: 1 m³ = 1000 L, so $1.2 \times 1000 = 1200$ L. (120 L and 12 000 L move the bridge by a power of ten, and 1.2 L leaves the answer in cubic metres.) Answer B.
17	C	Add the hours first: $06:40 + 8$ h $= 14:40$; then the minutes:

Question	Answer	Working
18	C	$14:40 + 30 \text{ min} = 15:10$. (14:40 stops before the 30 minutes are added, 14:70 is not a time at all — 70 minutes carries into the next hour — and 14:10 subtracts the 30 minutes.) Answer C. A fall is subtracted: $39.4 - 1.7 = 37.7$, so the temperature now is 37.7°C. (41.1 $^\circ\text{C}$ adds the fall, 38.3 $^\circ\text{C}$ subtracts the decimals the wrong way round — $7 - 4$ instead of $14 - 7$ — and 38.7 $^\circ\text{C}$ is a borrowing slip.) Answer C.
19	B	Milk is a liquid and 250 mL is a capacity; the measuring jug is the tool that measures capacity in mL. (A tape measure measures length, a bathroom scale measures body mass, and a thermometer measures temperature.) Answer B.
20	D	Cost = rate $\times$ length $= 3.50 \times 12 = 42$, so 12 m costs \$42.00. (\$15.50 adds \$3.50 and 12, \$35.00 is the cost of 10 m, and \$420.00 slips the decimal point.) Answer D.
21	A	Speed = distance $\div$ time $= 180 \div 2 = 90$, so the speed is 90 km/hr. (178 km/hr subtracts 2 from 180, 360 km/hr multiplies instead of dividing, and 45 km/hr halves the correct answer.) Answer A.
22	C	Pay = rate $\times$ hours $= 23.50 \times 6 = 141$, so Pearl is paid \$141.00. (\$29.50 adds \$6.00 to the hourly rate instead of multiplying, \$138.00 uses \$23.00 per hour — it drops the 50 c — and \$1410.00 slips the decimal point.) Answer C.
23	B	“How many more” compares with subtraction: $1515 - 1240 = 275$ votes. (535 is $1515 - 980$ — it compares Chen with Devi instead of Alvarez, 2755 adds the two vote counts, and 3735 adds all three: $1240 + 1515 + 980$.) Answer B.
24	D	Read the bar for 2025 off the chart: the bar reaches 90, so 90 trees were planted in 2025. (120 is the 2023 bar, 150 is the 2024 bar, and 180 is

Question	Answer	Working
25	A	the 2026 bar.) Answer D. Substitute $w=6$ and $d=3$ into $P = 4w + 2d:$ $P = 4 \times 6 + 2 \times 3 = 24 + 6 = 30$ points. (27 adds the 3 draws without doubling them, 54 is $(4+2) \times (6+3)$ — it adds first and multiplies after — and 78 is $(4 \times 6 + 2) \times 3$ — it multiplies the 3 draws by the whole wins term plus 2.) Answer A.

Section B (written response)

Question 1.

a. The small box holds 500 g, which is 5 lots of 100 g. Unit price = price $\div$ amount:

$$= 2.20 \div 5 = 0.44$$

The unit price of the small box is **\$0.44 per 100 g**.

b. The large box holds 750 g, which is 7.5 lots of 100 g:

$$= 2.85 \div 7.5 = 0.38$$

The unit price of the large box is **\$0.38 per 100 g**.

c. The better buy is the box with the lower unit price. \$0.38 per 100 g is less than \$0.44 per 100 g, so the **large box** is the better buy.

Question 2.

a. Pay = rate $\times$ hours:

$$15 \times 24 = 360$$

Luke was paid **\$360.00** for the 15 hours.

b. Time and a half means rate $\times$ 1.5:

$$24 \times 1.5 = 36$$

Luke's Sunday rate is **\$36.00 per hour**.

c. 20% of \$360:

$$\frac{20}{100} \times 360 = 72$$

Luke saves **\$72.00**.

Question 3.

a. A dose comes every 6 hours, so in 24 hours:

$$24 \div 6 = 4$$

There are **4 doses** in 24 hours.

b. Each dose is 5 mL:

$$4 \times 5 = 20$$

The total amount in one day is **20 mL**.

c. Divide the bottle by one day's medicine:

$$90 \div 20 = 4.5$$

The question asks for whole days, and only whole days count: 5 days would need 100 mL, which is more than the bottle holds, while 4 days needs $4 \times 20 = 80$ mL, which fits. The bottle lasts **4 whole days**.

Question 4.

a. Area = $l \times w$:

$$8 \times 1.5 = 12$$

The area of the path is **12 m²**.

b. Volume = area $\times$ thickness:

$$12 \times 0.1 = 1.2$$

The concrete needed is **1.2 m³**.

c. The timber goes all the way around the edge, so find the perimeter first:

$$P = 2 \times (8 + 1.5) = 2 \times 9.5 = 19 \text{ m}$$

Cost = rate $\times$ length:

$$19 \times 6.50 = 123.50$$

The timber costs **\$123.50**.

Question 5.

a. Cost = flat fee + price per person $\times$ number of people:

$$80 + 25 \times 6 = 80 + 150 = 230$$

The party for 25 people costs **\$230.00**.

b. Compare with the budget: \$230.00 is less than \$260, so **yes, the party fits within the budget**, with $260 - 230 = 30$ — that is \$30 spare.

c. Take off the flat fee first, then divide by the price per person:

$$(260 - 80) \div 6 = 180 \div 6 = 30$$

Check: $80 + 30 \times 6 = 80 + 180 = 260$ ✓. The greatest whole number of people is **30**.

7B — Answers

Section A (multiple choice)

Question	1	2	3	4	5	6	7	8	9	10
Answer	B	D	A	C	A	D	B	C	A	D

Rounding notes. Question 14b is correct to the nearest cent, as the question asked: the third decimal place is 2, which is less than 5, so round down — \$9.27. Every other answer in this paper is an exact value.

Section B (the problem-solving cycle task)

Q11. (a) does the team arrive before the 3:00 pm start, and does the hire after the discount fit inside the \$220 budget? (b) 75 km and 60 km/hr (c) e.g. the two-week booking rule (or the canteen's 5 pm closing time) (d) e.g. find the cost before the discount (3 hours at \$85 per hour); take off 20%; compare with \$220

Q12. (a) about \$270 (b) 1.25 hours (c) 2:25 pm (d) \$204.00

Q13. (a) yes — \$255 is close to the estimate of about \$270 (b) yes — 35 minutes before the start (c) yes — \$16.00 left over

Q14. (a) e.g. “The bus hire, after the 20% discount, costs \$204.00, so it fits inside the club's \$220 budget.” (b) \$9.27 (correct to the nearest cent) (c) e.g. a short written report — the committee reads the results after the trip

7B — Fully-worked solutions

Section A (multiple choice)

Question	Answer	Working
1	B	The cycle always runs in the same order: stage 1 identify the mathematics, stage 2 act on and use mathematics, stage 3 evaluate and reflect, stage 4 communicate and report. Only option B lists that order. (Option A acts before it identifies and reports before it checks, option C swaps the last two stages, and option D starts at stage 3.) Answer B.
2	D	The task asks whether \$90 is enough, so the two questions hiding inside are: what does the fabric cost, and is that cost \$90 or less? — option D. (Option A asks about colour and place, option B asks about time and value, and option C asks about the seller — none of these is the comparison the task needs.) Answer D.
3	A	“How much change” takes one amount away from another: the words change and left over point to subtraction. (Addition puts amounts together, multiplication adds the same amount again and again, and

Question	Answer	Working
4	C	division shares into equal groups.) Answer A. The estimate comes first so that a rough answer is ready to check the exact answer against in stage 3 — that is the estimate’s job in the cycle. (An estimate never replaces the exact calculation, it is not the number reported in stage 4, and estimating does not make the exact work faster.) Answer C.
5	A	Round \$3.90 to the nearest dollar: it is past the halfway mark of \$3.50, so it rounds up to \$4. Then multiply: $8 \times 4 = 32$. The estimate is \$32. (\$31.20 is the exact cost, not the estimate, \$24 rounds the price down to \$3, and \$40 rounds the price up to \$5.) Answer A.
6	D	\$78.50 is close to the estimate of about \$80, so the exact total passes the check — it is reasonable. (An estimate is a rough target, not an exact one, so option A is wrong; the report gives the exact total, not the estimate, so option B is wrong; and every total can be checked against an estimate, so option C is wrong.) Answer D.
7	B	Test the answer in the story: $6 \times 12 = 72$, and \$72 is more than the \$70 on the card, while $5 \times 12 = 60$ fits — so the card pays for 5 whole sessions, as option B says. (Option A rounds up and overspends the card, option C reports a part session nobody can book, and option D’s “always round down” is not a rule — the story decides.) Answer B.
8	C	The sponsor reads the result next week and is not at the meeting, so the report must stand alone: a short written report, in full sentences, with the numbers and their units — option C. (A spoken summary is gone by next week, a photo of a screen has no words or units, and an unlabelled sketch cannot be read.) Answer C.
9	A	Money is written to two decimal places, and the report is a full

Question	Answer	Working
		sentence with the units: “The order costs \$31.20.” — option A. (Option B drops the cents-place zero, option C has no sentence and no units, and option D reports an estimate when the exact cost was asked for.) Answer A. A failed check sends you back: return to an earlier stage, find the mistake, and work forward through the stages again — looping back is why it is called a cycle. (Reporting anyway, bending the estimate to match, or skipping stage 3 all ignore the mistake.) Answer D.
10	D	

Section B (the problem-solving cycle task)

Question 11. Stage 1 — Identify the mathematics.

- a.** Model answer: the two questions this task needs to answer are *does the team arrive at Pioneer Park before the 3:00 pm start?* and *does the bus hire, after the discount, fit inside the club’s \$220 budget?* (Accept any wording that covers both the arrival-time check and the budget check.)
- b.** Time for the journey comes from $\text{time} = \text{distance} \div \text{speed}$, so the two numbers Talia needs are the distance, 75 **km**, and the speed, 60 **km/hr**.
- c.** Model answer: the rule that the bus must be booked at least two weeks ahead. (Also accept: the canteen at Pioneer Park closes at 5 pm. Both facts sit outside the mathematics.)
- d.** Model plan, in order:
1. Find the hire cost before the discount: 3 hours at \$85 per hour.
 2. Take off the 20% club-member discount to find the cost after the discount.
 3. Compare the cost after the discount with the \$220 budget and decide whether it fits.
- (Accept any sensible plan, in a workable order, that ends with the comparison against \$220.)

Question 12. *Stage 2 — Act on and use mathematics.*

a. Use the rounded rate the question gives — \$85 rounded to \$90:

$$3 \times 90 = 270$$

The estimate is **about \$270**.

b. Time = distance $\div$ speed:

$$75 \div 60 = 1.25$$

The journey takes **1.25 hours**.

c. 1.25 hours is 1 hour and 0.25 of an hour, and the prompt says 0.25 of an hour is 15 minutes. Add 1 h 15 min to the 1:10 pm departure: 1:10 pm + 1 h = 2:10 pm, and 2:10 pm + 15 min = 2:25 pm. The team arrives at **2:25 pm**.

d. Cost before the discount:

$$3 \times 85 = 255$$

The discount is 20 % of \$255:

$$\frac{20}{100} \times 255 = 51$$

Take the discount off:

$$255 - 51 = 204$$

Check with the 80 % multiplier: $\frac{80}{100} \times 255 = 204 \checkmark$. The hire cost after the discount is **\$204.00**.

Question 13. *Stage 3 — Evaluate and reflect.*

a. The exact cost before the discount is \$255, and the estimate from Question 12a is about \$270. The difference is

$$270 - 255 = 15$$

so the exact cost sits only \$15 below the estimate — the two are close — and it makes sense in the story: three hours at a rate a little under \$90 per hour should come out a little under \$270. The exact cost is **reasonable**. (The estimate came out higher because it rounded the rate up, from \$85 to \$90.)

b. The arrival time from Question 12c is 2:25 pm, and the game starts at 3:00 pm. From 2:25 pm to 3:00 pm is 35 minutes, so **yes — the team arrives before the start, by 35 minutes**.

c. The cost after the discount is \$204.00, and \$204.00 is less than \$220, so **yes, the hire fits inside the budget**. The money left over is

$$220 - 204 = 16$$

so there is **\$16.00** left over.

Question 14. *Stage 4 — Communicate and report.*

a. Model answer: “*The bus hire, after the 20 % discount, costs \$204.00, so it fits inside the club’s \$220 budget.*”

The sentence answers the question directly, states the decision, and carries the cost with its units. (Accept any sentence that reports the decision and the cost \$204.00 with units.)

b. Each person’s share = cost after the discount $\div$ number of people:

$$204 \div 22 = 9.2727 \dots$$

Correct to the nearest cent, as the question asked: the third decimal place is 2, and 2 is less than 5, so round down.
Each person pays **\$9.27**.

Check: $22 \times 9.27 = 203.94$, just under \$204.00 ✓.

c. Model answer: a short written report (or a labelled summary sheet). The committee reads the results after the trip, so a written format that stands alone — full sentences, numbers with their units — suits an audience that will not hear Talia explain. (Accept any sensible format with a reason matched to the audience.)

7C — Answers

Section A (multiple choice)

Question	1	2	3	4	5	6	7	8	9	10	11	12
Answer	C	D	B	C	B	D	A	C	B	A	D	A

Rounding notes. Question 8 is to the nearest cent, as the question asked: the third decimal place is 6, which is 5 or more, so round the cents up — \$31.67. Every other answer in this paper is an exact value.

Section B (short answer)

Q13. (a) 200 g (b) 1600 g (c) 1.6 kg (d) yes — 1.6 kg is close to the estimate of about 1.7 kg

Q14. (a) \$126.50 (b) \$218.50 (c) \$149.50 (d) \$1 265.00 is 10 times the \$126.50 from part (a) — the 55 input is 10 times too big, so the output is 10 times too big

7C — Fully-worked solutions

Section A (multiple choice)

Question	Answer	Working
1	C	The job is a long outdoor length: 40 m across an open paddock. The trundle wheel is built for long lengths outdoors — it counts the metres as it rolls. (A 30 cm ruler is far too short, a tape measure would sag across 40 m, and a spirit level checks level, not length.) Answer C.
2	D	The gap between the labels is $1000 - 500 = 500$ g, and one small space = gap $\div$ spaces $= 500 \div 5 = 100$ g. The needle sits 2 spaces past 500 g: $500 + 2 \times 100 = 700$ g. (502 g reads one space as 1 g, 600 g counts one space instead of two, and 750 g is not one of this scale's steps.) Answer D.
3	B	19:20 is past noon, so subtract 12 from the hour and keep the minutes: $19 - 12 = 7$, giving 7:20 in the evening — 7:20 am is before noon, 9:20 pm subtracts 10 instead of 12, and 19:20 pm mixes the two systems — 24-hour time does not use am/pm.) Answer B.
4	C	A spreadsheet keeps formulas in cells and recalculates the answer every time an input changes, so the running total updates itself as each day is added. (A calculator does one sum at a time and remembers

Question	Answer	Working
5	B	nothing, a unit converter app changes units, and a map and trip app plans journeys.) Answer C. The cell shows the formula's answer, not the formula itself: $=B2 * C2$ means $5 \times 22.40 = 112$, so D2 shows \$112.00. (\$27.40 adds instead of multiplying, "the formula $=B2 * C2$" is what is typed in, not what is shown, and \$1 120.00 slips the decimal point.) Answer B.
6	D	Outputs follow inputs: when B3 changes, the formula in D3 recalculates by itself — no retyping. The new pay is $4 \times 22.50 = 90$, so D3 shows \$90.00. (\$157.50 is the old answer with 7 hours, \$26.50 adds the hours to the rate instead of multiplying, and option C is wrong — a formula never needs retyping when only an input changes.) Answer D.
7	A	The estimate $240 \div 3 = 80$ is a rough target, not an exact one. The calculator's 75 is close to 80 — and a little below it, which makes sense because dividing by 3.2 hours gives less than dividing by 3 hours — so 75 km/hr is reasonable. (Option B treats the estimate as an exact target, option C ignores that a wrong input gives a wrong output, and option D reports the estimate as the answer.) Answer A.
8	C	$95 \div 3 = 31.666\dots$; to the nearest cent, look at the third decimal place: it is 6, and 6 is 5 or more, so round the cents up — each workmate pays \$31.67. (\$31.66 rounds down when the deciding digit says up, \$31.6666666 is the calculator display — not money — and \$31.70 rounds to the wrong place.) Answer C.
9	B	The job needs a small capacity shown exactly: 5 mL of liquid. Measuring spoons are made for small liquid amounts like this one. (The jug's smallest mark is 25 mL, so it cannot show 5 mL; both scales measure mass, not volume — and the bathroom scale's 100 g marks

Question	Answer	Working
		are far too coarse for a recipe.) Answer B.
10	A	The tape has marks only at whole centimetres, so an honest record claims whole centimetres: 86 cm. (86.54 cm, 86.0 cm and 85.999 cm all claim finer detail than the tool can give.) Answer A.
11	D	Each activity is a share of the one total raised, and a pie chart shows parts of one whole. (A line graph shows change over time, a bar chart compares separate amounts, and a table lists pairs of values — none of these shows shares of one whole the way a pie chart does.) Answer D.
12	A	Two warning signs are here: pressure — the 24-hour deadline pushes Dani to act before checking — and a web address that is not the company's own (the owner's name sits at the end of the address, and the power company's name is not there). (The amount and the word "power" are not warning signs, a bill arriving about a power account is not a sign either way, and option D ignores both signs.) Answer A.

Section B (short answer)

Question 13.

a. The gap between the labels is $2 - 1 = 1$ kg, and $1 \text{ kg} = 1000 \text{ g}$. One small space = gap $\div$ spaces:

$$1000 \div 5 = 200$$

One small space is **200 g**.

b. The needle sits 3 spaces past the 1 kg label:

$$1000 + 3 \times 200 = 1600$$

The scale shows **1600 g**.

c. Grams to kilograms steps up to a bigger unit, so divide by 1000:

$$1600 \div 1000 = 1.6$$

The mass of the bag is **1.6 kg**.

d. Yes — the scale reading of 1.6 kg is close to Mina's estimate of about 1.7 kg: the two are only 0.1 kg apart, so the reading supports the estimate.

Question 14.

a. Cell D2 holds the formula $=B2 * C2$, so it shows hours $\times$ rate:

$$5.5 \times 23.00 = 126.50$$

Cell D2 shows **\$126.50**.

b. Cell D4 holds $=SUM(D2 : D3)$, so it adds the two days' pay. Tuesday first: $4 \times 23.00 = 92.00$. Then:

$$= 126.50 + 92.00 = 218.50$$

Cell D4 shows **\$218.50**.

c. Outputs follow inputs: when B3 changes to 6.5, the formula $=B3 * C3$ recalculates by itself:

$$6.5 \times 23.00 = 149.50$$

Cell D3 now shows **\$149.50**.

d. From part a., the correct Monday pay is \$126.50. The calculator's \$1 265.00 is exactly 10 times that:

$$10 \times 126.50 = 1265.00$$

Pressing 55 instead of 5.5 makes the hours input 10 times too big, so the output comes out 10 times too big — a wrong input gives a wrong output. An estimate flags it too: about $5 \times 23 = 115$, which is nowhere near \$1 265.00.