Captivate
EDUCATION

Foundation Mathematics

Question and Answer Book

Practice examination 1 – 2027

Student name _____

Teacher _____

- Reading time is 15 minutes
- Writing time is 2 hours

Approved materials

- One bound reference that may be annotated
- One scientific calculator

Materials supplied

- Question and Answer Book
- Formula Sheet
- Multiple-Choice Answer Sheet

Instructions

- Follow the instructions on your Multiple-Choice Answer Sheet.
- At the end of the examination, place your Multiple-Choice Answer Sheet inside the front cover of this book.

Students are not permitted to bring mobile phones and/or any unauthorised electronic devices into the examination room.

Contents

Section A (20 questions, 20 marks)

Section B (12 questions, 60 marks)

Practice material in the layout of the 2025 VCAA paper – generated 2027. Not a VCAA examination.

SAMPLE

Section A – Multiple-choice questions

Instructions

- Answer **all** questions in pencil on your Multiple-Choice Answer Sheet.
- Choose the response that is correct for the question.
- A correct answer scores 1; an incorrect answer scores 0.
- Marks will not be deducted for incorrect answers.
- No marks will be given if more than one answer is completed for any question.
- Unless otherwise indicated, the diagrams in this book are not drawn to scale.

Question 1

A coach makes a sports drink by mixing concentrate and water in the ratio 3 : 20 by volume.

The coach makes 9.2 litres (L) of sports drink for a training session.

The volume of concentrate needed is

A. 0.46 L

B. 1.2 L

C. 1.38 L

D. 8 L

Question 2

The school fete committee orders 38 boxes of sausages for the sausage sizzle.

Each box costs $47.85.

Using a leading-digit approximation for each value, the estimated cost of the sausages is

A. $1500

B. $1600

C. $1818.30

D. $2000

Question 3

A fitness trainer uses the following rule to estimate a person's maximum heart rate, in beats per minute.

$$\text{maximum heart rate} = 208 - 0.7 \times \text{age}$$

During a training ride, a cyclist's heart rate is 135 beats per minute.

This is 75% of the cyclist's maximum heart rate.

Using the rule, the age of the cyclist, in years, is closest to

A. 20

B. 28

C. 40

D. 104

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Question 4

The time taken to set up the stalls for a school fete varies inversely with the number of volunteers.

Six volunteers take 5 hours to set up the stalls.

The minimum number of volunteers needed to set up the stalls in 4 hours is

A. 4

B. 5

C. 7

D. 8

Question 5

The line graph below shows the distance, in kilometres (km), that a triathlete trained each week over an eight-week period.



The percentage increase in weekly training distance from week 1 to week 8 is closest to

A. 40.0%

B. 42.1%

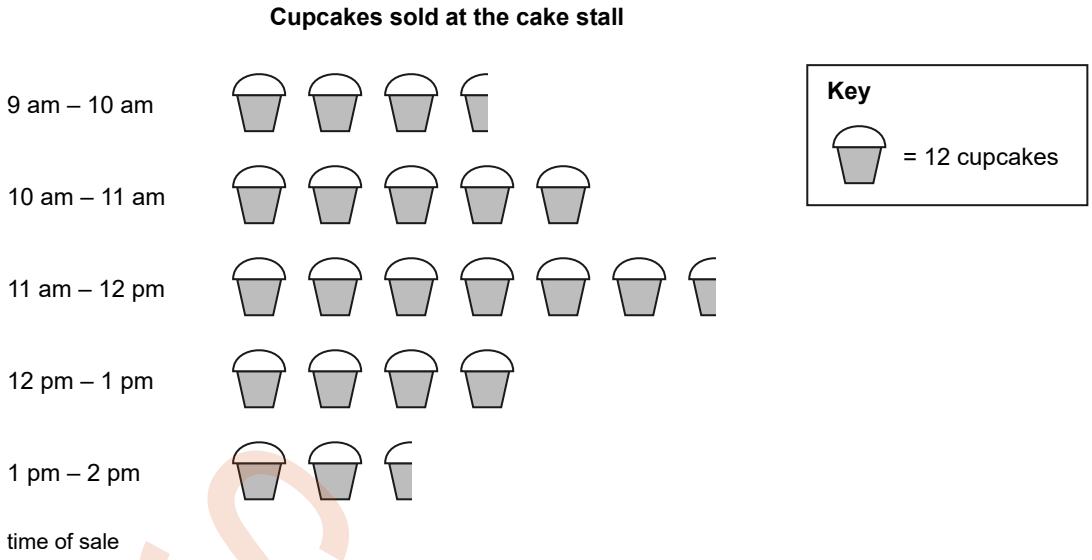
C. 72.7%

D. 172.7%

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Question 6

The pictogram below shows the number of cupcakes sold at the cake stall of a school fete during each hour that the stall was open.



Each cupcake was sold for $2.50.

The total income from the cupcakes sold at the cake stall was

A. $53.75

B. $537.50

C. $600.00

D. $645.00

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Marking scheme – teacher copy

Practice examination 1 – 2027

Not for distribution to students.

Section	Questions	Marks available	Marks awarded
Section A	20	20	
Section B	12	60	
Total		**80**	

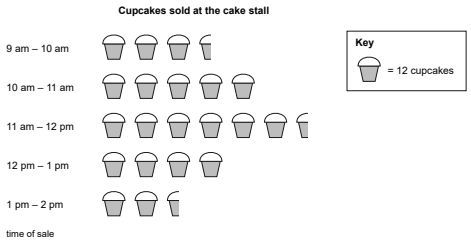
Section A

Question	Key	Question	Why
1	**B**	A coach makes a sports drink by mixing concentrate and water in the ratio 3 : 20 by volume. The coach makes 9.2 litres (L) of sports drink for a training session. The volume of concentrate needed is	3 + 20 = 23 parts; 3 ÷ 23 × 9.2 = 1.2 L. Option C results from using 20 as the total number of parts (3 ÷ 20 × 9.2); option D is the volume of water; option A results from dividing 9.2 by 20.
2	**D**	The school fete committee orders 38 boxes of sausages for the sausage sizzle. Each box costs $47.85. Using a leading-digit approximation for each value, the estimated cost of the sausages is	38 ≈ 40 and $47.85 ≈ $50, so 40 × 50 = $2000. Option C is the exact cost, not an estimate; option B results from truncating $47.85 to $40; option A results from truncating 38 to 30.

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3	**C**	A fitness trainer uses the following rule to estimate a person's maximum heart rate, in beats per minute. maximum heart rate = 208 − 0.7 × age During a training ride, a cyclist's heart rate is 135 beats per minute. This is 75% of the cyclist's maximum heart rate. Using the rule, the age of the cyclist, in years, is closest to	Maximum heart rate = 135 ÷ 0.75 = 180; 180 = 208 − 0.7 × age, so age = (208 − 180) ÷ 0.7 = 40. Option B omits the final division by 0.7; option A multiplies 28 by 0.7 instead of dividing; option D uses 135 as the maximum heart rate ((208 − 135) ÷ 0.7 ≈ 104).
4	**D**	The time taken to set up the stalls for a school fete varies inversely with the number of volunteers. Six volunteers take 5 hours to set up the stalls. The minimum number of volunteers needed to set up the stalls in 4 hours is	Inverse variation: k = 6 × 5 = 30; number of volunteers = 30 ÷ 4 = 7.5, so a minimum of 8 volunteers. Option C rounds 7.5 down (7 volunteers would take more than 4 hours); options A and B result from treating the variation as direct (6 × 4 ÷ 5 = 4.8, rounded down or up).
5	**C**	The line graph below shows the distance, in kilometres (km), that a triathlete trained each week over an eight-week period.  The percentage increase in weekly training distance from week 1 to week 8 is closest to	Week 1 = 55 km, week 8 = 95 km; (95 − 55) ÷ 55 × 100% = 72.7%. Option B results from dividing by the final value (40 ÷ 95); option A gives the 40 km difference as a percentage; option D is 95 ÷ 55 × 100% with no subtraction.

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6	**D**	The pictogram below shows the number of cupcakes sold at the cake stall of a school fete during each hour that the stall was open.  Each cupcake was sold for $2.50. The total income from the cupcakes sold at the cake stall was	Icons: 3.5 + 5 + 6.5 + 4 + 2.5 = 21.5; 21.5 × 12 = 258 cupcakes; 258 × $2.50 = $645.00. Option C results from ignoring the half icons (240 cupcakes); option B uses 10 cupcakes per icon; option A counts icons rather than cupcakes (21.5 × $2.50).
7	**A**	The heat map below shows the number of visits to an indoor climbing centre in each time slot during one week. **Visits to an indoor climbing centre in one week** time of day 6–9 am | 9 am–12 pm | 12–3 pm | 3–6 pm | 6–9 pm Monday 142 64 38 96 171 Tuesday 128 58 41 88 159 Wednesday 135 61 35 92 166 Thursday 120 55 44 101 148 Friday 98 47 52 79 83 Saturday 110 158 74 45 30 Sunday 72 131 69 40 22 Key 0–49 visits | 50–99 visits | 100–149 visits | 150 or more visits Based on the heat map, the statement that is correct is	Saturday's largest value is 158 (9 am–12 pm) and Sunday's is 131 (9 am–12 pm), so A is correct. B is incorrect because Monday 6–9 pm had 171 visits; C is incorrect because Friday (52), Saturday (74) and Sunday (69) had at least 50 visits from 12–3 pm; D is incorrect because on Friday the 6–9 am slot (98) had more visits than 6–9 pm (83).
8	**B**	A swimmer's times, in seconds, for eight 50-metre freestyle races are shown in the table below. **Race** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** Time (s) | 28.42 | 27.95 | 28.10 | 28.67 | 27.88 | 28.31 | 28.05 | 28.54 The median time, in seconds, for these eight races is	Ordered times: 27.88, 27.95, 28.05, 28.10, 28.31, 28.42, 28.54, 28.67; n = 8, so the median is halfway between the 4th and 5th values: (28.10 + 28.31) ÷ 2 = 28.205 s. Option C is the mean; options A and D are the 4th and 5th ordered values alone.

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