

2024 VCE Foundation Mathematics Examination

Marking guidelines and
sample responses

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2024 VCE Foundation Mathematics Examination

Making guidelines and sample responses

Marking guidelines will indicate the initial criteria that will be used to award marks.

This report provides sample responses, or an indication of what responses may have included.

Section A

Question	Answer
1	C
2	A
3	D
4	C
5	C
6	A
7	D
8	C
9	B
10	B
11	A
12	B
13	D
14	D
15	B
16	C
17	D
18	A
19	C
20	B

Section B

Question 1a

Answer	1 mark
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ACT

Question 1b

Answer	1 mark
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32%

Question 1c

Answer	1 mark
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3 : 2 or $\frac{3}{2}$

Question 1d

Method	1 mark
Answer	1 mark

$$\frac{5\,207\,145}{\text{Res. land area}} = 521.5$$

Residential land area = 9985

Question 2a

Answer	1 mark
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\$1139.70

Question 2b

Method	1 mark
Answer	1 mark

Maximum authorised cost = \$527.78

Resale price = \$530

$\$530 > \527.75 (resale $>$ authorised)

Sale is not authorised

Question 2c

Method	1 mark
Answer	1 mark

$$B + D = 42$$

$$309.9B + 199.9D = 10\,265.80$$

B reserve = 17 and D reserve = 25

Question 3a

Answer	1 mark
--------	--------

0.52 kg (520 g)

Question 3b

Method	1 mark
Answer	1 mark

Price per tart =

$$\frac{1}{12} \left(\frac{250}{1000} \times 1.40 + \frac{125}{375} \times 4.80 + \frac{1}{6} \times 5.4 + 3.20 + \frac{100}{375} \times 2.80 \right)$$

Price/tart = \$0.57 or 57c

Question 3c

Answer	1 mark
Their correct answer	1 mark

2.6 g

$$9.3\% \quad \left(\frac{2.6}{28} \times 100\% \right)$$

Question 4a

Answer	1 mark
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85%

Question 4b

Answer	1 mark
Their correct answer	1 mark

The 15th and the 50th percentiles

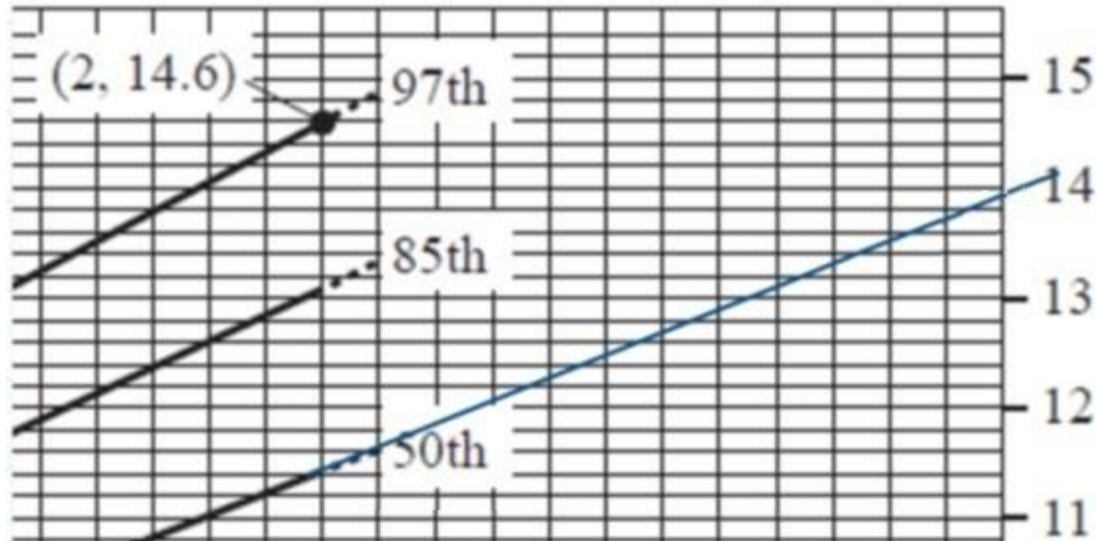
Valid explanatory statement

- Weight is lighter than the 50th and heavier than the 15th percentile.
- (Other alternatives possible.)

Question 4ci

Answer	1 mark
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Linear extrapolation shown on graph starting at 50th percentile and passing through the right side of the graph.



Question 4cii

Answer	1 mark
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Predicted weight for a 3-year-old child is 13.9 kg

Question 5a

Answer	1 mark
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Traffic navigation apps

Question 5bi

Answer	1 mark
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Facial recognition

Question 5bii

Answer	1 mark
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200

Question 5c

Answer	1 mark
Their correct answer	1 mark

- The majority (55% or more) of responders chose ‘concerned’ at the level of AI being used in content areas which was more than any other level of concern.
- An example is personalised advertising where 64% showed ‘concerned’, 19% were ‘neutral’, while 14% were ‘unconcerned’. All other types showed similar statistics.
- (Other alternatives possible.)

Question 6ai

Answer	1 mark
--------	--------

Median selling price = \$1 291 000

Question 6aii

Their correct answer	1 mark
Answer	1 mark

$$(\text{Ans6ai}) - 1\,220\,000 = (71\,000)$$

$$\text{Percentage difference} = \frac{(71\,000)}{1\,220\,000} \times 100\% \approx 5.8\%$$

Question 6b

Method	1 mark
Answer	1 mark

$$\frac{1\,264\,000 + 1\,234\,500 + \dots + 1\,404\,000 + 1\,355\,500 + s}{11} = 1\,300\,000$$

Next selling price, $s = \$1\,952\,000$

Question 7a

Method	1 mark
Answer	1 mark

$$\text{Total paid} = \$5000 + 48 \times \$646 = \$36\,008$$

$$\text{Total interest paid} = \$36\,008 - \$29\,000 = \$7008$$

Question 7bi

Method	1 mark
Method	1 mark

$$\begin{aligned}\text{Value lost in 1 year} &= \frac{15}{100} \times 29\,000 + 0.03 \times 15\,000 \\ &= 4350 + 450 \\ &= \$4800\end{aligned}$$

Question 7bii

Answer	1 mark
--------	--------

6 years

Question 8a

Answer	1 mark
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$$\begin{aligned}\text{Taxable income} &= \$84\,000 - \$2400 - \$150 - \$260 - \$150 - \$150 \times 12 \\ &= \$79\,240\end{aligned}$$

Question 8b

Method	1 mark
Answer	1 mark

$$\$5092 + (\$79\,240 - \$45\,000) \times 0.325$$

$$\text{Tax payable} = \$16\,220$$

Question 8c

Method	1 mark
Answer	1 mark

$$\begin{aligned}\text{Contributions} &= 52 \times \$100 + 11\% \times \$84\,000 \\ &= \$5200 + \$9240 \\ &= \$14\,440\end{aligned}$$

Question 9a

Answer	1 mark
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$$r = \frac{1875}{500\,000} \times 100\%$$

$$= 0.375\%$$

Question 9b

Answer	1 mark
Answer	1 mark

$$\text{Difference} = \$5617.58 - \$5595.20 = \$22.38$$

Interest is calculated on a reducing balance, therefore interest gets smaller over time

Question 9c

Method	1 mark
Answer	1 mark

$$\text{Interest per month} = \frac{0.5}{100} \times \$412\,531.59 = \$2062.66$$

$$\text{Interest per year} = \text{Interest per month} \times 12$$

$$\text{Total} = 12 \times \$2062.66 = \$24\,751.92 \approx \$24\,751.90$$

Question 10a

Answer	1 mark
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552 m²

Question 10bi

Method	1 mark
Answer	1 mark

$$\begin{aligned} V &= 0.15 \times (\text{area}) \\ &= 42.3845\dots m^3 \\ &\approx 45m^3 \end{aligned}$$

Question 10bii

Their correct answer	1 mark
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$$(\text{ans10bi}) \times 1000 \times 1.5 = \$67\,500$$

Question 10c

Answer	1 mark
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9 hours

Question 11a

Answer	1 mark
Answer	1 mark

9.6 metres

13.1 metres

Question 11b

Answer	1 mark
Answer	1 mark

$429 \leq \$\text{Cost} \leq 4290$

Question 11c

Answer	1 mark
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8 L tin gives the best value for money.

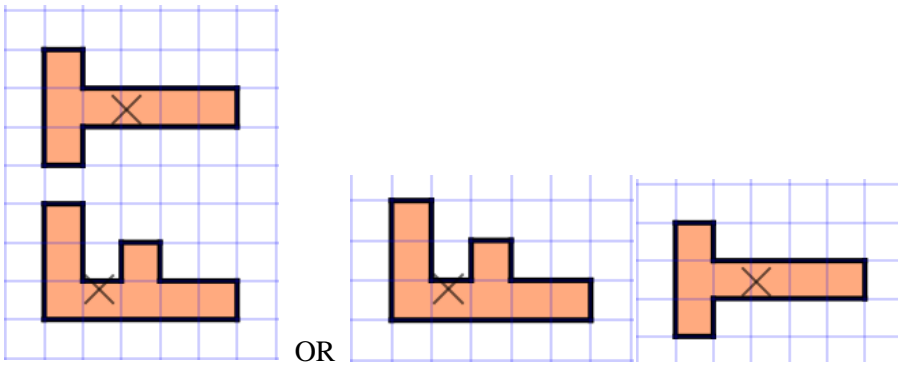
Question 12a

Answer	1 mark
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80 cm × 50 cm × 40 cm

Question 12b

Answer	1 mark
Answer	1 mark



Question 12c

Method	1 mark
Answer	1 mark

Volume of tank = $0.16 \times 1000 = 160$ litres

14 fish