2024 VCE Foundation Mathematics Examination

Marking guidelines and sample responses

Acknowledgement

The Victorian Curriculum and Assessment Authority proudly acknowledges and pays respect to Victoria's Aboriginal and Torres Strait Islander communities and their rich and enduring cultures.

We acknowledge Aboriginal and Torres Strait Islander people as Australia's first peoples and as the Traditional Owners and custodians of the lands and waters on which we rely. We pay respect to Elders past and present of the lands where we conduct our work and recognise their ongoing contributions as the first educators on the land now known as Victoria.

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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

ACT

Question 1b

Answer	1 mark

32%

Question 1c

Answer	1 mark

$3 : 2$ or $\dfrac{3}{2}$

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

$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 =

$$\frac{1}{12}\left(\frac{250}{1000}\times1.40+\frac{125}{375}\times4.80+\frac{1}{6}\times5.4+3.20+\frac{100}{375}\times2.80\right)$$

Price/tart = $0.57 or 57c

Question 3c

Answer	1 mark
Their correct answer	1 mark

2.6 g

9.3%　　($\frac{\boxed{2.6}}{28}\times100\%$)

Question 4a

Answer	1 mark

85%

Question 4b

Answer	1 mark
Their correct answer	1 mark

The 15th and the 50th percentiles

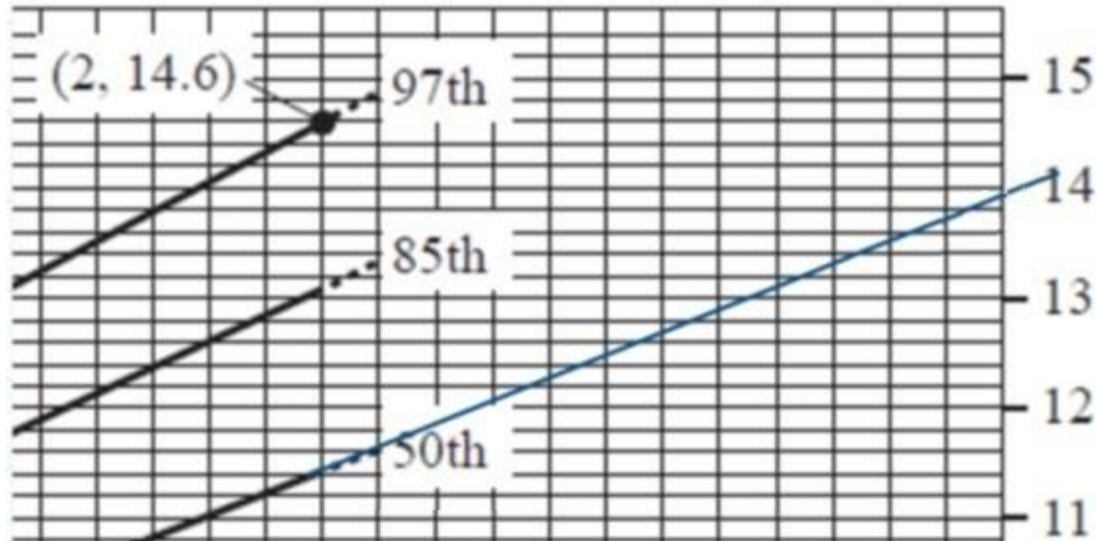Valid explanatory statement

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

Question 4ci

Answer	1 mark

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

Question 4cii

Answer	1 mark

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

Question 5a

Answer	1 mark

Traffic navigation apps

Question 5bi

Answer	1 mark

Facial recognition

Question 5bii

Answer	1 mark

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

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

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

Question 6b

Method	1 mark
Answer	1 mark

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

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

Question 7a

Method	1 mark
Answer	1 mark

Total paid = $5000 + 48 × $646 = $36 008

Total interest paid = $36 008 – $29 000 = $7008

Question 7bi

Method	1 mark
Method	1 mark

$$\text{Value lost in 1 year} = \frac{15}{100} \times 29\,000 + 0.03 \times 15\,000$$

$$= 4350 + 450$$

$$= \$4800$$

Question 7bii

Answer	1 mark

6 years

Question 8a

Answer	1 mark

Taxable income $= \$84\,000 - \$2400 - \$150 - \$260 - \$150 - \$150 \times 12$

$\qquad\qquad\qquad = \$79\,240$

Question 8b

Method	1 mark
Answer	1 mark

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

Tax payable $= \$16\,220$

Question 8c

Method	1 mark
Answer	1 mark

Contributions $= 52 \times \$100 + 11\% \times \$84\,000$

$\qquad\qquad\quad = \$5200 + \$9240$

$\qquad\qquad\quad = \$14\,440$

Question 9a

Answer	1 mark

$$r = \frac{1875}{500\,000} \times 100\%$$
$$= 0.375\%$$

Question 9b

Answer	1 mark
Answer	1 mark

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

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

Interest per year = Interest per month $\times$ 12

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

Question 10a

Answer	1 mark

552 m^2

Question 10bi

Method	1 mark
Answer	1 mark

$V = 0.15 \times (area)$

$\quad = 42.3845... \, m^3$

$\quad \approx 45m^3$

Question 10bii

Their correct answer	1 mark

$(ans10bi) \times 1000 \times 1.5 = \$67\,500$

Question 10c

Answer	1 mark

9 hours

Question 11a

Answer	1 mark
Answer	1 mark

9.6 metres

13.1 metres

Question 11b

Answer	1 mark
Answer	1 mark

$429 \leq \$Cost \leq 4290$

Question 11c

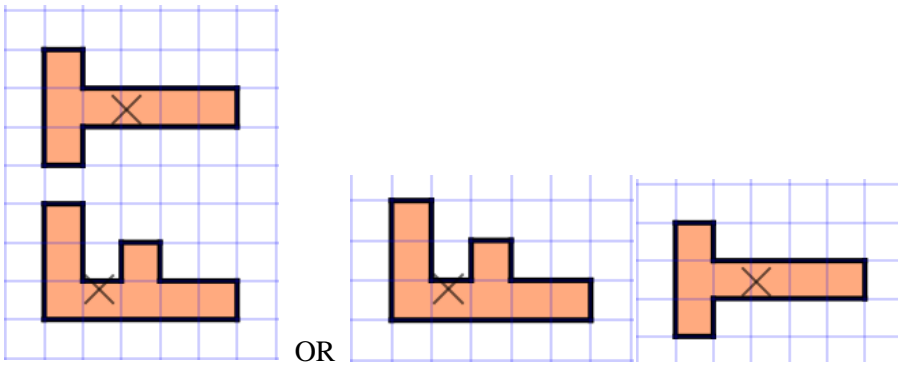| Answer	1 mark

8 L tin gives the best value for money.

Question 12a

Answer	1 mark

$80 \text{ cm} \times 50 \text{ cm} \times 40 \text{ cm}$

Question 12b

Answer	1 mark
Answer	1 mark

OR

Question 12c

Method	1 mark
Answer	1 mark

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

14 fish