



2021 VCE Further Mathematics 2 (NHT) examination report

Specific information

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

Section A – Core

Data analysis

Question 1a.

Correct answer: age and time

Question 1b.

3 (name, event, gender)

Question 1ci.

28:13

Question 1cii.

Event	Gender	
	Female	Male
12 km run	4	4
6 km run	3	2
Total	7	6

Question 1di.

60%

Question 1dii.

A statement that clearly indicates the contention is supported with a change or difference in one category of *event* was required for the first mark. For the second mark a statement similar to the following (choosing one category) using appropriate percentages was required:

- The percentage of females who participated in the 12km walk (34%) was higher than the percentage of males who participated in that event (16%).

Question 2a.

The correct answer was symmetric with two outliers.

Question 2b.

The correct answer was 4.

Question 2c.

The correct answer was 58.

Question 2di.

Lower fence = $24 - 1.5 \times 11 = 7.5$

Upper fence = $35 + 1.5 \times 11 = 51.5$

Question 2dii.

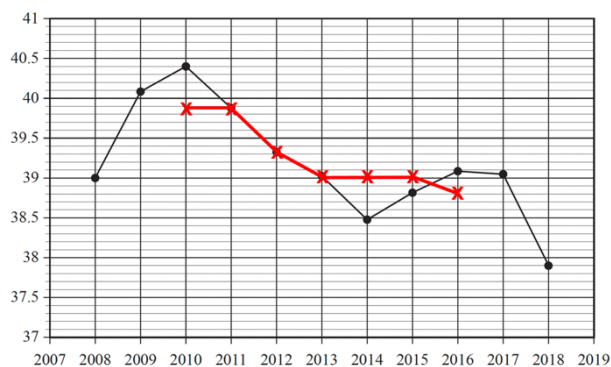
The correct answer was:

$7.5 < 10 < 51.5$

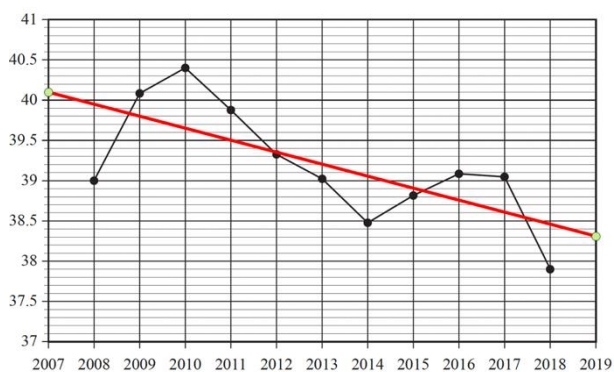
Question 3a.

The correct answer was 2010.

Question 3b.



Question 3c.i.



Question 3cii.

The correct answer was 0.15 minutes.

Question 3ciii.

The correct answer was 52.39%.

Question 3civ.

The correct answer was -0.56 .

Question 4a.

The correct answer was 2.94 minutes.

Question 4bi.

The correct answer was 2036.

Question 4bii.

The correct answer was 7 seconds.

Question 4biii.

A similar decreasing trend continues beyond 2018.

Recursion and financial modelling

Question 5a.

The correct answer was \$240 000.

Question 5b.

The correct answer was $\frac{800}{240000} \times 12 \times 100\%$

Question 5c.

792.98

707.02

237 185.98

Question 6a.

$$V_1 = 120\,000 - 10\,920 = 109\,080$$

$$V_2 = 109\,080 - 10\,920 = 98\,160$$

Question 6b.

The correct answer was 60.

Question 6c.

The correct answer was 9.1%.

Question 7a.

The correct answer was Year 1.

Question 7b.

The correct answer was 219.

Question 7c.

Yes, as balance after five years of \$99759.42 is less than \$100 000

Question 8

$$V_0 = 600\,000 \quad V_{n+1} = 1.0095V_n - 5700$$

Section B – Modules

Module 1 – Matrices

Question 1a.

The correct answer was 3×1 .

Question 1bi.

$$\begin{bmatrix} 60 & 132 & 48 \\ 65 & 143 & 52 \\ 75 & 165 & 60 \end{bmatrix}$$

Question 1bii.

The number of Year 9 students awarded a credit in English.

Question 1c.

$$[60 \ 65 \ 75] \times \begin{bmatrix} 0.25 \\ 0.28 \\ 0.30 \end{bmatrix}$$

OR

$$[0.25 \ 0.28 \ 0.30] \times \begin{bmatrix} 60 \\ 65 \\ 75 \end{bmatrix}$$

Question 2a.

The correct answer was Amy and Ellie.

Question 2b.

The correct answer was:

Cleo → Ellie → Brian → Amy

Question 3a.

The correct answer: 29% of students obtaining a credit this year are expected to obtain a distinction next year.

Question 3b.

$$1 - 0.29 - 0.09 = 0.62$$

Question 3c.i.

The correct answer was 0.02.

Question 3cii.

The correct answer was 87.

Question 4.

The correct answer was 26.

Module 2 – Networks and decision mathematics

Question 1a.

The correct answer was 3.

Question 1b.

The correct answer was 55 km.

Question 1c.

The correct answer was loop.

Question 1d.

	<i>home</i>	<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>	<i>airport</i>
<i>home</i>	0	1	0	0	1	0
<i>P</i>	1	0	1	1	0	0
<i>Q</i>	0	1	0	1	0	1

Question 2a.

The correct answer was 6.

Question 2b.

The correct answer was 54.

Question 2c.

The correct answer was 47.

Question 2d.

The correct answer was Hong Kong and London.

Question 3a.

The correct answer was 4.

Question 3b.

B	5
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Question 3c.

The correct answer was 4.

Question 3d.

Reduced by one week

Module 3 – Geometry and measurement

Question 1a.

The correct answer was 69 metres.

Question 1b.

$$\text{Length} = \sqrt{23^2 - 11.5^2}$$

Question 1c.

The correct answer was 229 m^2 .

Question 1d.

The correct answer was $24\,429 \text{ cm}^3$.

Question 1e.

The correct answer was 20 cm.

Question 2a.

$$h = \frac{1244}{p \cdot 6^2}$$

Question 2b.

The correct answer was 933 cm^3 .

Question 2c.

The correct answer was 254.5 cm^2 .

Question 3a.

$$\tan \vartheta = \frac{918}{1310} \rightarrow \vartheta = 35^\circ \text{ to the nearest degree}$$

$$\text{Bearing} = 270^\circ - 35^\circ = 235^\circ$$

Question 3b.

The correct answer was 657 km.

Module 4 – Graphs and relations

Question 1a.

The correct answer was 55 m.

Question 1b.

The correct answer was 6 km.

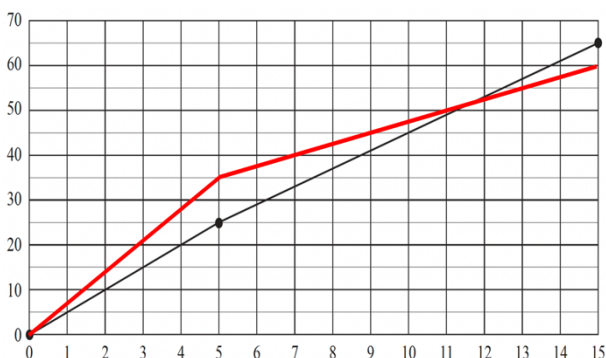
Question 1ci.

$$\frac{175 - 150}{5 - 3} = 12.5$$

Question 1cii.

The correct answer was m / km.

Question 2a.



Question 2bi.

$$a = \frac{60 - 35}{15 - 5} = 2.5$$

Question 2bii.

$$b = 35 - 2.5 \times 5 = 22.5$$

Question 2c.

The correct answer was 12 km/h.

Question 2d.

The correct answer was 51 minutes 40 seconds.

Question 3a.

$$x \text{ £}10000$$

Question 3b.

The correct answer was \$46 800.

Question 3c.

The correct answer was \$12 500.