



2022 VCE Further Mathematics 2 (NHT) external assessment 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.

18

Question 1b.

2.5%

Question 1c.

Mean = 28

Standard deviation = 2.5

Question 2a.

3 (year, winner, country)

Question 2bi.

14

Question 2bii.

4129

Question 2biii.

0.896

Question 2c.

96.099

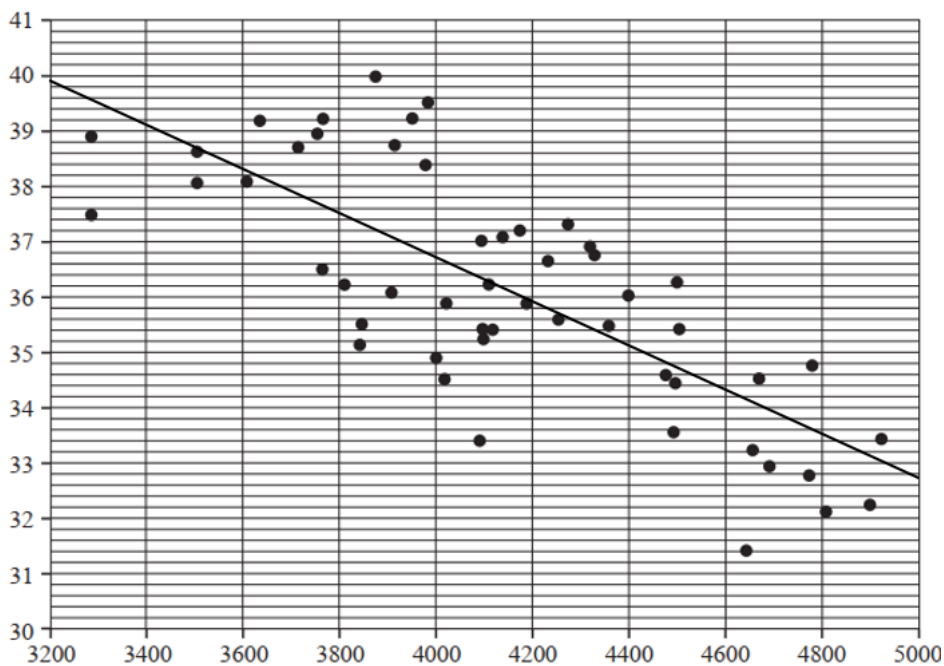
Question 2di.

On average, the number of finishers increases by 0.3648 for each increase of 1 in the number of starters.

Question 2dii.

4

Question 3a.



Endpoints at (3200, 39.889) and (5000, 32.689).

Question 3b.

35.1

Question 3c.

Interpolation

Question 3di.

Linearity

Question 3dii.

The residual plot has no clear pattern (or has a random scatter of points).

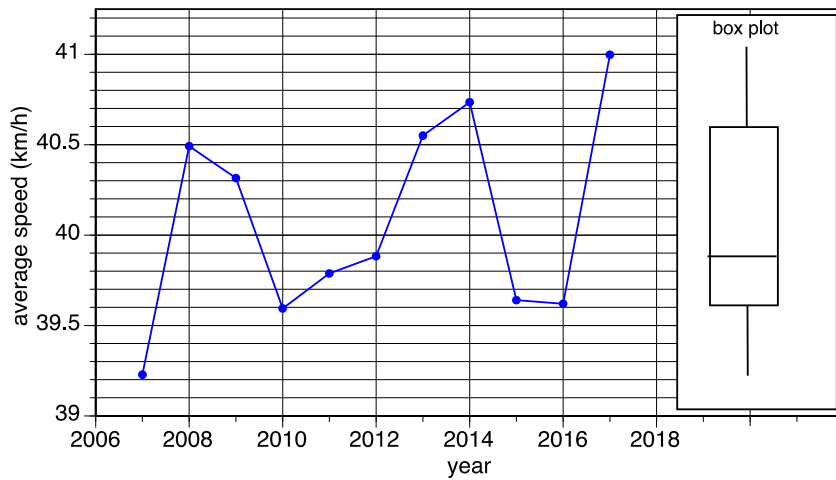
Question 3e.

0.927

Question 3f.

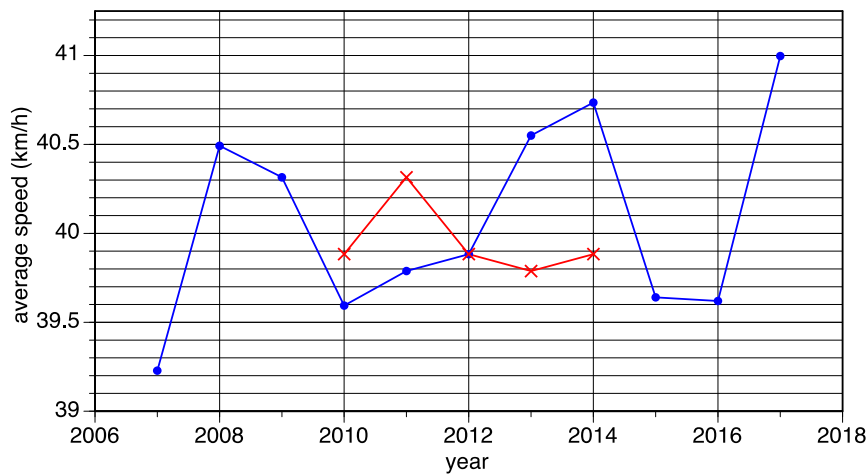
57.7%

Question 4a.



Question 4b.

Students needed to plot all five points and they all needed to be connected.



Recursion and financial modelling

Question 5a.

$$R = \frac{5800}{4000}$$

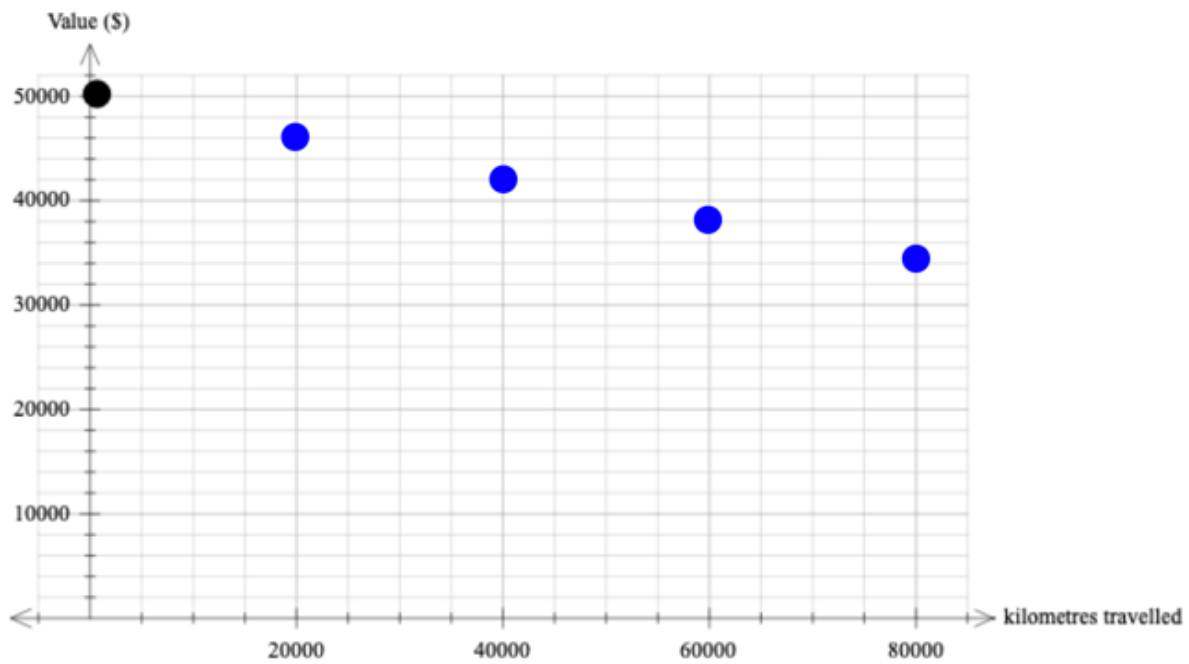
Question 5b.

$$B_2 = 1.45 \times 5800 = 8410$$

$$B_3 = 1.45 \times 8410 = 12194.50$$

Question 5c.

Question 6a.



Points are at (20 000, 46 000), (40 000, 42 000), (60 000, 38 000), (80 000, 34 000).

Question 6b.

50 000		- 0.20
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Question 6c.

8%

Question 7a.

$$\frac{6680}{800\,000} \times 100 \times 4 = 3.34\%$$

Question 7b.

24

Question 7c.

$$V_0 = 800\,000, \quad V_{n+1} = 1.00835V_n - 12148.80$$

Question 8

\$831

Section B – Modules

Module 1 – Matrices

Question 1a.

The cost of an evening ticket is \$7.00.

Question 1b.

$$\begin{bmatrix} 20 & 45 & 62 \end{bmatrix} \times \begin{bmatrix} 4.50 \\ 5.50 \\ 7.00 \end{bmatrix}$$

Question 1c.

$$\begin{bmatrix} 20 & 0 & 0 \\ 0 & 45 & 0 \\ 0 & 0 & 62 \end{bmatrix}$$

Question 2a.

Library

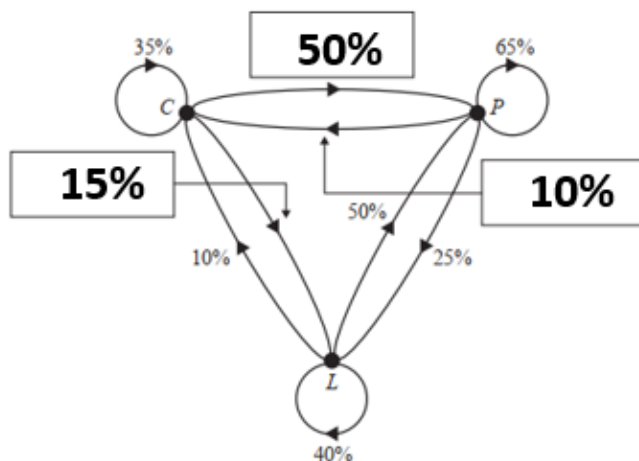
Question 2b.

R–C–L and R–P–L (or L–C–R and L–P–R)

Question 2c.

There are no one-step or two-step paths linking fitness and residential.

Question 3a.



Question 3b.

$$\begin{bmatrix} 70 \\ 264 \\ 116 \end{bmatrix}$$

Question 3c.

210

Question 3d.

125

Question 3e.

9

Question 3f.

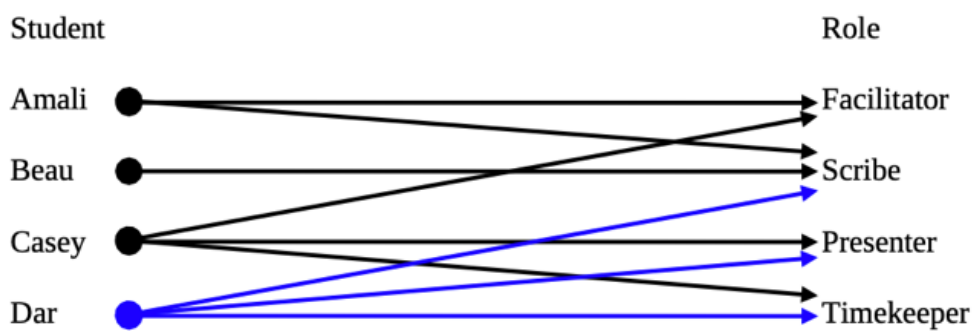
100

Module 2 – Networks and decision mathematics

Question 1a.

Beau

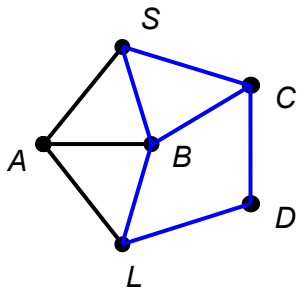
Question 1b.



Question 1c.

Timekeeper

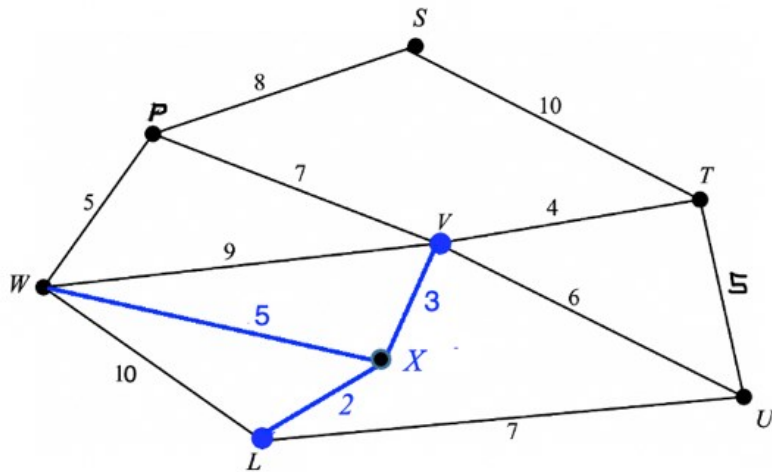
Question 2.



Question 3a.

P-S-T-V-U-L-W-P or P-W-L-U-V-T-S-P

Question 3b.



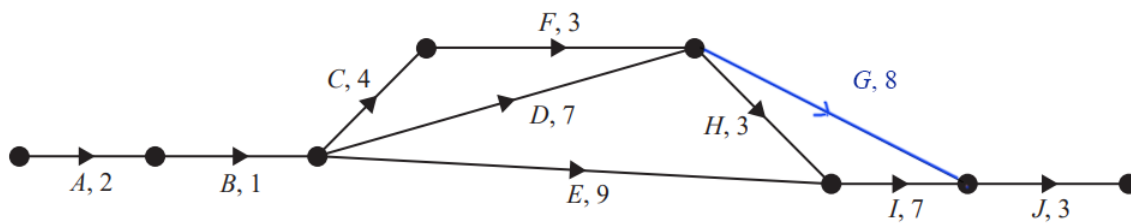
Question 3c.

46 km

Question 4a.

Activity	EST	LST
B		2
C	3	

Question 4b.



Question 4c.

$A-B-D$ (or $C-F$) $-H-I-J$, 23 weeks

Question 4d.

Increase F and decrease C .

Increase H and decrease I .

Module 3 – Geometry and measurement

Question 1a.

5000 cm^3

Question 1b.

40 cm

Question 1c.

2.5

Question 2a.

Radius = $6400 \cos 47^\circ = 4364.789$

Question 2b.

4419 km

Question 3a.

71.42 m

Question 3b.

330.28 m^2

Question 3c.

86.6 m

Question 4a.

200 m

Question 4b.

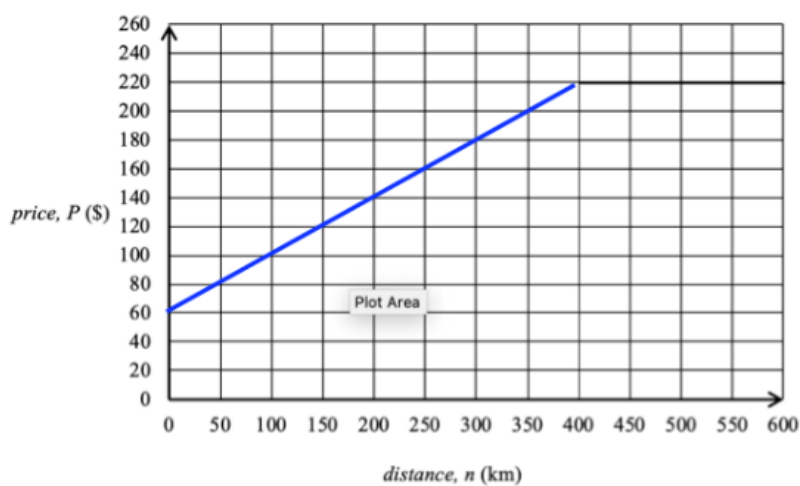
019

Module 4 – Graphs and relations

Question 1a.

\$160

Question 1b.



Line drawn from $(0, 60)$ to $(400, 220)$.

Question 1c.

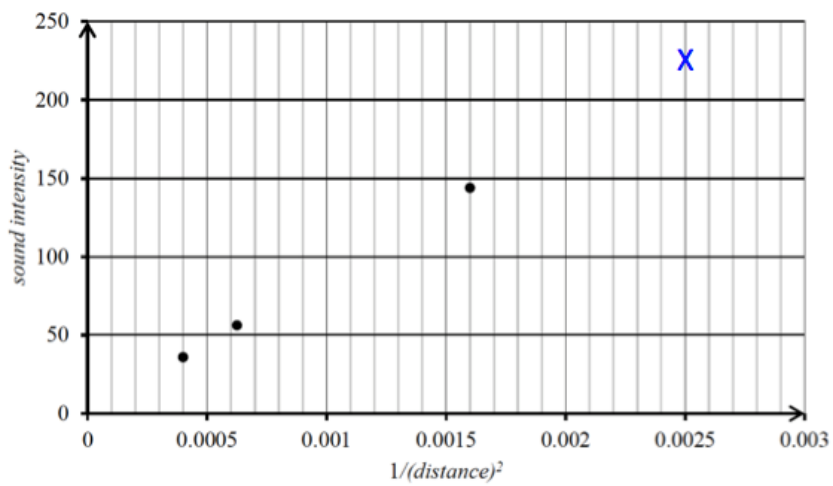
$a = 75$

$b = 0.42$

Question 2a.

$$\frac{144 - 125}{25 - 20} \square \frac{56.25 - 144}{40 - 25} \square \frac{36 - 56.25}{50 - 40}$$

Question 2b.



Point at (0.0025, 225).

Question 2c.

16

Question 3

\$7.80

Question 4a.

Each plane can transport at most 40 small containers.

Question 4b.

8		27
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Question 4c.

\$7300