

Paper Reference 9FM0/3D

Pearson Edexcel Level 3 GCE

Further Mathematics

Total Marks

Advanced

PAPER 3D: Decision Mathematics 1

Friday 20 June 2025 – Afternoon

Time: 1 hour 30 minutes

Answer Booklet

THIS DOCUMENT MUST BE
RETURNED TO PEARSON AT THE END
OF THE EXAMINATION.

In the boxes below, write your name,
centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

1.

4·7 2·9 5·5 1·4 5·8 2·8
3·8 6·5 5·1 6·3 4·1

**Answer lines continue on the next
four pages.**

Turn over

1. continued.

4·7 2·9 5·5 1·4 5·8 2·8
3·8 6·5 5·1 6·3 4·1

1. continued.

4·7 2·9 5·5 1·4 5·8 2·8

3·8 6·5 5·1 6·3 4·1

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Turn over

1. continued.

4·7 2·9 5·5 1·4 5·8 2·8

3·8 6·5 5·1 6·3 4·1

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Turn over

1. continued.

4·7 2·9 5·5 1·4 5·8 2·8

3·8 6·5 5·1 6·3 4·1

(Total for Question 1 is 5 marks)

2.

271	828	182	845	904
523	536	028	747	135

Answer lines continue on the next
five pages.

Turn over

2. continued.

271 828 182 845 904

523 536 028 747 135

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Turn over

2. continued.

271	828	182	845	904
523	536	028	747	135

2. continued.

271 828 182 845 904

523 536 028 747 135

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Turn over

2. continued.

271 828 182 845 904

523 536 028 747 135

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Turn over

2. continued.

271	828	182	845	904
523	536	028	747	135

(continued on the next page)

2. continued.

**(c) Refer to Diagram 1 in the
Diagram Booklet.**

**You may not need to use
all the rows in the table.**

**It may not be necessary to
complete all boxes in each
row.**

**Answer lines continue on the
next three pages.**

Output: _____

Turn over

2. continued.

Turn over

2. continued.

2. continued.

(Total for Question 2 is 10 marks)

Turn over

3. Refer to Diagram 2, Diagram 3 and Diagram 4 in the Diagram Booklet.

(a) Initial time matrix

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. (a) continued.

Spare copy for Initial time matrix

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. continued.**(b) Fourth iteration**

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)**Turn over**

3. (b) continued.

Spare copy for Fourth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. (b) continued.

Fifth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. (b) continued.

Spare copy for Fifth iteration

	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

(continued on the next page)

Turn over

3. continued.

**Answer lines continue on the next
four pages.**

Turn over

3. continued.

Turn over

3. continued.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Turn over

3. continued.

Turn over

3. continued.

(Total for Question 3 is 10 marks)

4. Refer to Diagram 5 and Diagram 6 in the Diagram Booklet.

Answer lines continue on the next twelve pages.

4. continued.

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Turn over

4. continued.

Turn over

4. continued.

Turn over

4. continued.

Turn over

4. continued.

Turn over

4. continued.

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Turn over

4. continued.

Turn over

4. continued.

Turn over

4. continued.

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Turn over

4. continued.

Turn over

4. continued.

Turn over

4. continued.

(Total for Question 4 is 13 marks)

Turn over

5. Refer to Diagram 7 in the Diagram Booklet.

Answer lines continue on the next five pages.

5. continued.

Turn over

5. continued.

Turn over

5. continued.

Turn over

5. continued.

Turn over

5. continued.

(continued on the next page)

5. continued.

(e) (i)

b.v.	X	Y	Z	s ₁	s ₂	s ₃	Value
X	1	0	$-\frac{3}{4}$	$\frac{1}{8}$	0	$-\frac{1}{4}$	$\frac{5}{8}$
s ₂	0	0	$\frac{9}{4}$	$\frac{1}{8}$	1	$\frac{3}{4}$	$\frac{117}{8}$
Y	0	1	$-\frac{1}{4}$	$\frac{3}{8}$	0	$\frac{1}{4}$	$\frac{63}{8}$
Q	0	0	$-\frac{5}{4}$	$\frac{15}{8}$	0	$\frac{1}{4}$	$\frac{267}{8}$

(continued on the next page)

Turn over

5. (e) (i) continued.

b.v.	X	Y	Z	S ₁	S ₂	S ₃	Value	Row Ops
Q								

(continued on the next page)

Turn over

5. continued.

(e) (i) Spare copy

b.v.	X	Y	Z	S ₁	S ₂	S ₃	Value	Row Ops
Q								

(continued on the next page)

Turn over

5. continued.

(e) (ii)

(Total for Question 5 is 12 marks)

6. Refer to Diagram 8, Diagram 9, Diagram 10 and Diagram 11 in the Diagram Booklet.

(a) Table 1

Activity	Immediately preceding activities
A	
B	
C	
D	

(continued on the next page)

Turn over

6. (a) continued.

Activity	Immediately preceding activities
E	
F	
G	
H	
I	

(continued on the next page)

Turn over

6. (a) continued.

Activity	Immediately preceding activities
J	
K	
L	
M	

(continued on the next page)

Turn over

6. (a) continued.

Spare copy for Table 1

Activity	Immediately preceding activities
A	
B	
C	
D	

(continued on the next page)

Turn over

6. (a) continued.

Activity	Immediately preceding activities
E	
F	
G	
H	
I	

(continued on the next page)

Turn over

6. (a) continued.

Activity	Immediately preceding activities
J	
K	
L	
M	

(continued on the next page)

Turn over

6. continued.

(d)

(continued on the next page)

Turn over

6. (d) continued.

Table 2

Activity	Number of Workers
A	
B	
C	
D	
E	
F	

(continued on the next page)

Turn over

6. (d) continued.

Activity	Number of Workers
G	
H	
I	
J	
K	
L	
M	

(continued on the next page)

Turn over

6. (d) continued.

Spare copy for Table 2

Activity	Number of Workers
A	
B	
C	
D	
E	
F	

(continued on the next page)

Turn over

6. (d) continued.

Activity	Number of Workers
G	
H	
I	
J	
K	
L	
M	

(Total for Question 6 is 13 marks)

Turn over

**7. Refer to Diagram 12 and Diagram 13
in the Diagram Booklet.**

**Answer lines continue on the next
five pages.**

7. continued.

Turn over

7. continued.

Turn over

7. continued.

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Turn over

7. continued.

Turn over

7. continued.

(continued on the next page)

7. continued.

Spare copy

Value					
b.v.					P

(continued on the next page)

Turn over

7. continued.

**Answer lines continue on the next
seven pages.**

Turn over

7. continued.

Turn over

7. continued.

Turn over

7. continued.

Turn over

7. continued.

Turn over

7. continued.

Turn over

7. continued.

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Turn over

7. continued.

[illegible]

(Total for Question 7 is 12 marks)

TOTAL FOR PAPER IS 75 MARKS

END OF PAPER