

Paper Reference 9FM0/3D  
Pearson Edexcel  
Level 3 GCE

Total Marks
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Further Mathematics  
Advanced  
PAPER 3D: Decision Mathematics 1

Time: 1 hour 30 minutes

Answer Booklet

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

Surname					
Other names					
Centre Number					
Candidate Number					

Read the instructions on the next page.

**INSTRUCTIONS**

**Do not return the Question Paper with the Answer Booklet.**

**THIS ANSWER BOOKLET MUST BE RETURNED  
WITH THE DIAGRAM BOOKLET AT THE END OF  
THE EXAMINATION.**

3

1.  $4 \cdot 3$        $6 \cdot 1$        $5 \cdot 1$        $4 \cdot 7$        $2 \cdot 5$        $5 \cdot 9$   
 $3 \cdot 4$        $1 \cdot 7$        $2 \cdot 1$        $0 \cdot 4$        $1 \cdot 3$

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

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**

**1. continued.**

**4.3**

## 6.1

# 5.1

## 4.7

## 2.5

**5.9**

### 3.4

# 1.7

## 2.1

## 0.4

# 1.3

[illegible]

**Turn over**

**1. continued.**

**4.3**

## 6.1

# 5.1

**4.7**

**2.5**

**5.9**

### 3.4

# 1.7

## 2.1

## 0.4

# 1.3

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**

1. continued.

4·3	6·1	5·1	4·7	2·5	5·9
3·4	1·7	2·1	0·4	1·3	

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(Total for Question 1 is 5 marks)

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2. Refer to Diagram 1 and Diagram 2 in the Diagram Booklet.

Answer lines continue on the next five pages.

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**2. continued.**

[illegible]

**Turn over**



**2. 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**

**2. 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**

**2. continued.**

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**Turn over**

**2. 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.

**(Total for Question 2 is 13 marks)**

**Turn over**

3. Refer to Diagram 3, Diagram 4, Diagram 5 and Diagram 6 in the Diagram Booklet.

Answer lines and tables continue on the next ten pages.

(b)

3rd iteration

	A	B	C	D	E	F
A	—					
B		—				
C			—			
D				—		
E					—	
F						—

(continued on the next page)

Turn over

3. (b) continued.

Spare copy for 3rd iteration

	A	B	C	D	E	F
A	—					
B		—				
C			—			
D				—		
E					—	
F						—

(continued on the next page)

Turn over

3. (b) continued.

4th iteration

	A	B	C	D	E	F
A	—					
B		—				
C			—			
D				—		
E					—	
F						—

(continued on the next page)

Turn over

3. (b) continued.

Spare copy for 4th iteration

	A	B	C	D	E	F
A	—					
B		—				
C			—			
D				—		
E					—	
F						—

(continued on the next page)

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.**

[illegible]

**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.**

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.**

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.**

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.**

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.

**(Total for Question 3 is 10 marks)**

**Turn over**

- 4. Refer to the Diagram 7 in the Diagram Booklet.**

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

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.



**4. 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**

**4. 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**

**4. continued.**

[illegible]

**Turn over**

**4. 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**

**4. continued.**

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**(Total for Question 4 is 6 marks)**

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5. Refer to Diagram 8, Diagram 9, Diagram 10, Diagram 11, Diagram 12 and Diagram 13 in the Diagram Booklet.

(b)

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(c) (ii)

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(d)

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(Total for Question 5 is 14 marks)

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Turn over

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

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

The table below continues on the next page.

n	a	b	c

Turn over

6. continued.

n	a	b	c

Output: \_\_\_\_\_  
\_\_\_\_\_

(continued on the next page)



6. continued.

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

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

**The table below continues on the next page.**

n	a	b	c

**Turn over**

6. continued.

n	a	b	c

Output: \_\_\_\_\_

\_\_\_\_\_

(continued on the next page)

**6. continued.**

**Refer to Diagram 14 in the Diagram Booklet.**

17	21	24	14	23
13	15	19	28	20

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

[illegible]

**Turn over**

36

**6. continued.**

17

21

24

14

23

13

15

19

28

20

[illegible]

**Turn over**

**6. continued.**

17

21

24

14

23

13

15

19

28

20

[illegible]

**Turn over**

**6. continued.**

17

21

24

14

23

13

15

19

28

20

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**

**6. continued.**

17

21

24

14

23

13

15

19

28

20

[illegible]

**Turn over**

40

**6. continued.**

17

21

24

14

23

13

15

19

28

20

**Turn over**



41

**6. continued.**

17

21

24

14

23

13

15

19

28

20

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**

42

**6. continued.**

17

21

24

14

23

13

15

19

28

20

**Turn over**

43

**6. continued.**

17

21

24

14

23

13

15

19

28

20

[illegible]

**Turn over**

44

**6. continued.**

17

21

24

14

23

13

15

19

28

20

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**

6. continued.

17	21	24	14	23
13	15	19	28	20

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(Total for Question 6 is 12 marks)

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**7. Refer to Diagram 15 and Diagram 16 in the Diagram Booklet.**

**Answer lines and tables continue on the next eleven pages.**

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.

**7. 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**

7. continued.

b.v.	x	y					Value
P							

(continued on the next page)



7. continued.

b.v.	x	y					Value
P							

(continued on the next page)

7. continued.

(b)

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(continued on the next page)

7. continued.

b.v.	x	y	s <sub>1</sub>	s <sub>2</sub>	s <sub>3</sub>	s <sub>4</sub>	Value	Row Ops
P								

(continued on the next page)

7. continued.

b.v.	x	y	s <sub>1</sub>	s <sub>2</sub>	s <sub>3</sub>	s <sub>4</sub>	Value	Row Ops
P								

(continued on the next page)

7. continued.

Spare copy

b.v.	x	y	s <sub>1</sub>	s <sub>2</sub>	s <sub>3</sub>	s <sub>4</sub>	Value	Row Ops
P								

(continued on the next page)

Turn over

7. continued.

Spare copy

b.v.	x	y	s <sub>1</sub>	s <sub>2</sub>	s <sub>3</sub>	s <sub>4</sub>	Value	Row Ops
P								

(continued on the next page)

Turn over

**7. continued.**

[illegible]

**Turn over**

**7. continued.**

[illegible]

**Turn over**



**7. 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.

**(Total for Question 7 is 15 marks)**

**TOTAL FOR PAPER IS 75 MARKS**

**END OF PAPER**