Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Complete, fold and seal
(see note 2 below)

[redacted]

Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold o[redacted]
   and seal down (using the label provided) to hide your nam[redacted]
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	2412488
2	Title of Examination Paper	Mathematics Exam paper 1
3	Module Code	ACOA4008
4	Date and Time of Examination	06/05/2025 09:01
5	Examination Venue	IQ310
6	Seat Number	047

7	Number of Answer Books handed in	

List the numbers of the questions you have attempted	Office Use
1	25 ✓
2	20 ✓
3	10 ✓
4	5 ✓
6	20 ✓
5	1 ✓
Total	81 ✓

81% good

GT
Each 25

(Gweler yr ochr arall am y fersiwn Cymraeg)

Question No. | Examiner Only

1a. $5x+y-2z-3x-4y+z+2x-y+3z$

$=4x-4y+2z$ ✓ ✓ 5

1b. $2x(x+3)-x(x+6)$

$=2x^2+6x-x^2-6x$ ✓

$=x^2$ ✓ ✓ 5

1c. $2p^4qr \times 3pq^2 \times 4pr^4$ add indices

$=24p^6q^3r^5$ ✓ ✓ 5

1d. $\frac{12p^5qr}{3p^3q^2r^{-2}}$ subtract indices ✓

$=4p^2q^{-1}r^3$ ✓ ✓ 5

1e. $\frac{fg}{4h} \times \frac{gh^2}{fh} \times \frac{8fh^3}{2f^3}$

$=\frac{8f^2g^2h^5}{8f^4h^2}$ ✓

$=f^{-2}g^2h^3$ ✓ ✓ 5

25

Arholwr yn unig | Ar y Cwestiwn

Question No.

Examiner Only

2a. $3(x+2) = 2(x-4)$

$3x+6 = 2x-8$

$-6 \quad 3x = 2x-14 \quad -6$

$-2x \quad x = -14 \quad -2x$

8

2b. $\frac{(x-3)}{3} = x + \frac{(x+2)}{6}$ $\times 6$

$\times 6$

$2(x-3) = 6x + (x+2)$

$2x-6 = 7x+2$

$-2 \quad 2x-8 = 7x \quad -2$

$-2x \quad -8 = 5x \quad -2x$

$-\frac{8}{5} = x$

12

3.

$4x+2y = 2$ ① $\times 5$

$2x-5y = 7$ ② $\times 2$

$20x+10y = 10$ ③

$+$

$4x-10y = 14$ ④

$24x = 24$

$x = 1$

$x=1 \quad y=-1$

$4(1)+2y = 2$

$-4 \quad 2y = -2 \quad -4$

$y = -1$

good checking here

$2(1)-5(-1) = 7$

10

✓

✓

Arholwr yn unig

Rhif y Cwestiwn

Question No.

Examiner Only

4.

$$A = \begin{bmatrix} 1 & 0 & 2 \\ 1 & -1 & 1 \\ 1 & 2 & -1 \end{bmatrix}$$

$$= 1\begin{vmatrix} -1 & 1 \\ 2 & -1 \end{vmatrix} - 0\begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix} + 2\begin{vmatrix} 1 & -1 \\ 1 & 2 \end{vmatrix}$$

$$= 1\left((-1\times-1)-(1\times2)\right) - 0\left((1\times-1)-(1\times1)\right) + 2\left((1\times2)-(-1\times1)\right)$$

$\det A = 5$

Inverse $A^{-1} = \frac{1}{\det A}$ · et

$= \frac{1}{5}$ X

5

6.

$$f(x) = \frac{2x+5}{x^2+5x+6}$$

$$= \frac{2x+5}{(x+2)(x+3)}$$

$$= \frac{2x+5}{(x+2)(x+3)} = \frac{A}{(x+2)} + \frac{B}{(x+3)} \quad \times (x+2)(x+3)$$

$$= 2x+5 = A(x+3) + B(x+2)$$

let $x = -2$

$$2(-2)+5 = A(-2+3) + B(-2+2)$$

$$1 = A(1)$$

$A = 1$

let $x = -3$

$$2(-3)+5 = A(-3+3) + B(-3+2)$$

Arholwr yn unig

Rhif y Cwestiwn

Question No.

Examiner Only

$-1 = B(-3+2)$

$-1 = B(-1)$

$1 = B$ ✓

$= \frac{2x+5}{(x+3)(x+2)} = \frac{1}{(x+3)} + \frac{1}{(x+2)}$ ✓ ✓

20 ✓

where $A = 1$

$B = 1$ ✓

5.

$AX = b$

$$\begin{bmatrix} 1 & 0 & 2 \\ 1 & -1 & 1 \\ 1 & 2 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -2 \\ -2 \\ 3 \end{bmatrix}$$

1

—

Arholwr yn unig

Prifysgol Cymru