

Complete, fold and seal
(see note 1 below)

37%

SURNAME:

SAVIN

Candidate's Exam Number:

FORENAME(S):

LUKE JAMES

**Total Books
Handed In:**

Programme Title: _____

Year/Level/Stage: _____

Examination Paper Title: _____

Examination Paper Ref No.: _____ Desk Letter/Number: _____

Desk Letter/Number: _____

Date: ____ / ____ / 20____ Time: _____ am/pm Room Name or No. : _____

Time: _____ am/pm

Room Name or No.: _____

Instructions to Candidates:

Summary of Marks

1. Please give the information requested above and enter your name in the space provided at the top right of this page. If your answers are to be marked under a scheme whereby the examiners will not know your identity, fold over and seal down the top right-hand corner of the page (using the gummed label provided) in order to conceal your name.
2. Commence each answer on a fresh page.
3. Do all rough work in the answer book and cross through it.
4. No part of this booklet is to be torn out.
5. Supplementary answer books if used must:-
 - (a) bear the candidate's name (concealed, where appropriate), reference number and paper title;
 - (b) be numbered consecutively;
 - (c) be fastened together by the tags available from the invigilator.
6. Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the exam room.
7. Your answers must be legibly written **IN INK**.
The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.

Question Numbers Answered	1st Examiner	2nd Examiner (optional)	3rd Examiner (optional)
2	18.5		
3	11		
	29.5		
TOTAL			
RESULT			

EXAMINATION ANSWER BOOKS

Candidate's Exam Number

Topic

Block

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Page No.

Page No.

Examination Date

Examination Place

Page

INSTRUCTIONS TO CANDIDATES

1. The examination is to be held in the hall provided for this purpose. Candidates should arrive at the hall at least 15 minutes before the commencement of the examination.

2. The examination is to be held in the hall provided for this purpose.

3. The examination is to be held in the hall provided for this purpose.

4. The examination is to be held in the hall provided for this purpose.

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11. The examination is to be held in the hall provided for this purpose.

12. The examination is to be held in the hall provided for this purpose.

Q2 a: $4 - q^2$

$$(2+q)(2-q)$$

$$4 - 2q + q - q^2$$

$$4 - q^2$$

ii $3ab + 4cd - cb - 12ad$
 $a(3b-12d) \quad c(b+4d)$
 $(3b-12d)(c+a)$ ✗

iii $p^2 - 2p - 63$

$$(p-9)(p+7)$$

$$\begin{array}{l} 1 \times 63 \\ 3 \times 21 \\ 7 \times 9 \end{array}$$

iv $q^2 - 4qr$

$$q(q-4r)$$

b $(2x-1)(3x+5) = (6x-5)(x-9)$

$$6x^2 + 10x - 3x - 5 = 6x^2 - 54x - 5x + 45$$

$$6x^2 + 7x - 5 = 6x^2 - 59x + 45$$

$$+ 7x - 5 = -59x + 45$$

$$7x = -59x + 45 + 5$$

$$7x = -59x + 50$$

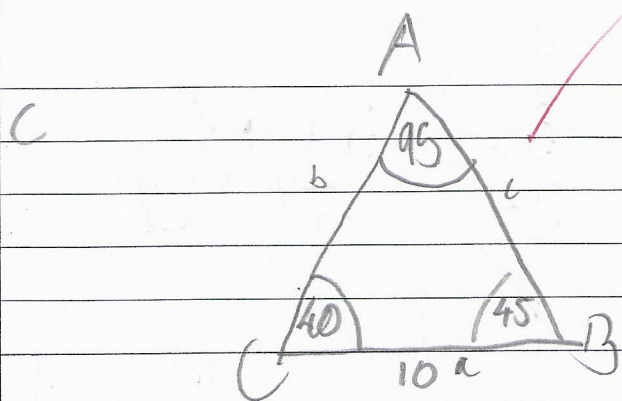
$$7x = 50$$

$$59x$$

$$0.1186x = 50$$

$$x = 50 - 0.1186$$

$$x = 49.88$$
 ✗



$$\frac{S}{H} = \frac{O}{H} = \frac{A}{T} = \frac{T}{A}$$

$$\frac{10}{\sin 95} = \frac{b}{\sin 40} = \frac{c}{\sin 45}$$

$$\frac{b}{\sin 40} = \frac{10}{\sin 95}$$

d(i) sin

$$45 \sin x = -3$$

$$x = \sin^{-1}$$

$$\therefore \cos x = -0.5$$

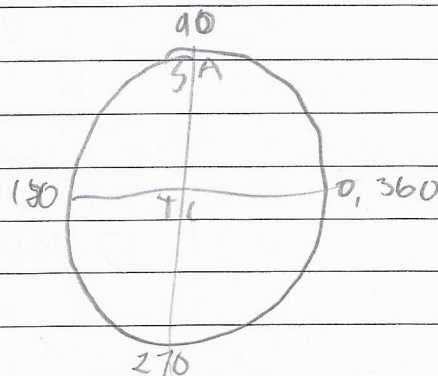
$$x = \cos^{-1} 0.5$$

$$x = 60$$

$$360 - 60 = 300$$

$$180 + 60 = 240$$

$$180 - 60 = 120$$



$$e \quad y = x^3 e^{2x}$$

$$\frac{dy}{dx} = u \left(\frac{dv}{dx} \right) + v \left(\frac{du}{dx} \right)$$

$$\frac{dy}{dx} = 3x^2 \cdot 2e^{2x}$$

$$u = 3x^2$$

$$v = 2e^{2x}$$

$$\frac{dy}{dx} = 3x^2 (2e^{2x}) + 2e^{2x} (3x^2)$$

X

$$ii \quad y = \sin 5x \cos 3x$$

$$e.g. \frac{dy}{dx} = [5 \cos 5x (-3 \sin 3x)] \quad u = 5 \cos 5x$$

$$v = -3 \sin 3x$$

$$e.g. \frac{dy}{dx} = 5 \cos 5x (3 \sin 3x) - 3 \sin 3x (5 \cos 5x)$$

X

$$Z = 2x^3 y - 7y^3 x + \sin x \cos y$$

$$\frac{\partial Z}{\partial x} = 6x^2 y - 7y^3 + \cos x \cos y \quad \frac{\partial Z}{\partial y} = 2x^3 - 21y^2 x + \sin x (-\sin y)$$

$$\frac{\partial^2 Z}{\partial x^2} = 12xy + (-\sin x) \cos y \quad \frac{\partial^2 Z}{\partial y^2} = 63yx + \sin x \cos y$$

$$\frac{\partial^2 Z}{\partial y^2} = 6x^2 y - 21y \cos x \sin y \quad \frac{\partial^2 Z}{\partial x^2} = 6x^2 - 21y \cos x \sin y$$

6

18/12

Q3 a $7x + 4y = 46$ ①
 $8x + 6y = 57$ ②

b $3x^2 + 5x - 2 = 0$
 $\begin{matrix} a & b & c \end{matrix}$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-5 \pm \sqrt{5^2 - 4(3)(-2)}}{2(3)}$$

$$x = \frac{-5 \pm \sqrt{25 + 24}}{6}$$

$$x = \frac{-5 \pm \sqrt{49}}{6}$$

$$x = \frac{-5 \pm 7}{6}$$

$$x = \frac{-5 + 7}{6}$$

$$x = \frac{-5 - 7}{6}$$

$$x = \frac{2}{6}$$

$$x = \frac{-12}{6}$$

$$x = \frac{1}{3}$$

$$x = -2$$

$$c: x^2 - 11x + 30 = 0$$

1 + 30
2 + 15
3 + 10
5 + 6

$$(x - 6)(x - 5)$$

$$x^2 - 5x - 6x + 30 = 0$$

$$x^2 - 11x + 30 = 0$$

$$\therefore x^2 - 11x = 0$$

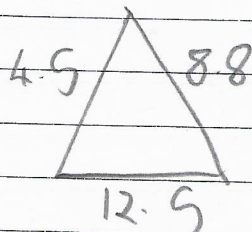
$$x(x - 11) = 0$$

$$iii: x^2 - 4 = 0$$

$$x(x - 4) = 0$$

$$(x + 2)(x - 2) = 0$$

5



$$s = \frac{4.5 + 8.8 + 12.9}{2}$$

$$s = \frac{25.8}{2}$$

$$s = 12.9$$

$$\sqrt{12.9(12.9 - 4.5)(12.9 - 8.8)(12.9 - 12.9)}$$

$$\sqrt{177.7104} = 13.33 \text{ cm}^2$$

$$3e \quad 1 \quad y = (2x^2 - 5x + 1)^7$$

$$\frac{dy}{dx} = 7(2x^2 - 5x + 1)^7$$
$$= 7(4x - 5)$$

X

$$\text{ii} \quad e^{x^2+4}$$

$$4e^{x^2+4}$$

X

$$\text{iii} \quad \cos^3 2x$$

$$3\cos^2 2x$$

X

11

Question No.

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