

**MID-YEAR EXAMINATION
2013 – 2014**

**FORM 3 MATHEMATICS PAPER I
Section A, B
Question-Answer Book**

INSTRUCTIONS

1. Write your examination number in the spaces provided on this cover.
2. In this paper, Section A carries 25 marks and Section B carries 35 marks.
3. Attempt ALL questions in the two sections. Do not write in the margins. Answers written in the margins will not be marked.
4. Supplementary answer sheets will be supplied on request. Write your Examination Number on each sheet and put them INSIDE this book.
5. Unless otherwise specified, all working steps must be clearly shown.
6. Unless otherwise specified, numerical answers should either be exact or correct to 3 significant figures.
7. The diagrams in this paper are not necessarily drawn to scale.

Form 3

Paper I

Examination Number		

	Marker's Use Only
Page No.	Marks
2	(10)
3	(6)
4	(9)
Section A Total	
5	(4)
6	(7)
7	(11)
8	(6)
9	(7)
Supplementary Answer Sheet	
Section B Total	
Total:	

Section A – Foundation Questions (25%)

1. Sam weighs 42.6 kg, correct to the nearest $\frac{1}{5}$ kg. What are the lower limit and the upper limit of this measurement? (3 marks)

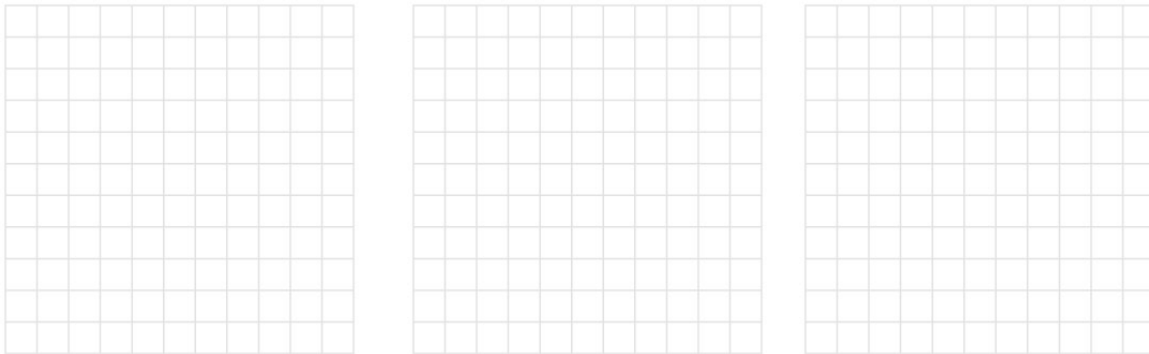
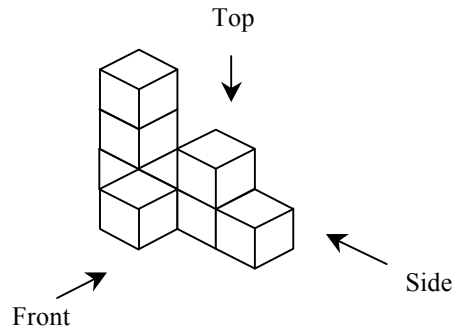
2. Simplify $\left(\frac{a^4b^{-2}}{a^{-3}b^0}\right)^{-1}$ and express your answer with positive indices. (3 marks)

3. a) Solve the following inequality and represent the solution graphically.

$$\frac{3x + 1}{5} \leq \frac{2x - 3}{8}$$

- b) Find the largest integer that satisfies the given inequality. (4 marks)

6. Draw the front, top and side views of the following object. (3 marks)

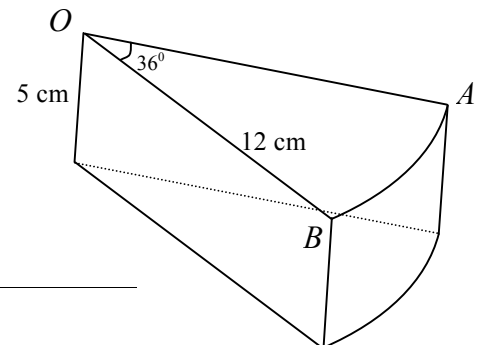


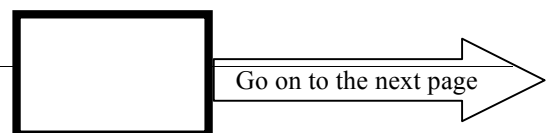
7. Kitty puts \$500 000 in a bank as a one-year fixed deposit for 4 years. The annual interest rate for the first 3 years is 8% and that for the last year is 10%. If both the principal and interest will be put in the fixed deposit upon renewal, what is the total interest she will get after 4 years? (3 marks)
(Give the answer correct to nearest thousand dollars)

8. The figure shows a cake in which the top and the bottom sectors are the same. Find

- a) the area of sector OAB ,
- b) the volume of the cake,
- c) the length of \widehat{AB} , (3 marks)

(Take $\pi = \frac{22}{7}$ and give the answers correct to 1 decimal place.)





12. The scores obtained in throwing a die and the corresponding frequencies are recorded in the following table.

Score	1	2	3	4	5	6
Frequency	6	9	10	7	6	x

If the mean score is 3.68, find

- a) the value of x;
- b) the median of the scores;
- c) the mode of the scores.

(5 marks)

13. The sides of triangle ΔABC are $AB = 7$, $BC = 5$ and $CA = 10 - \frac{5}{2}x$.

- a) Find the range of values of x .
- b) Is AB the longest side of ΔABC ? Explain briefly.

(6 marks)

Exam Number	
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Form 3 Mathematics

Paper 1

Section C

Question – Answer Book

Instructions

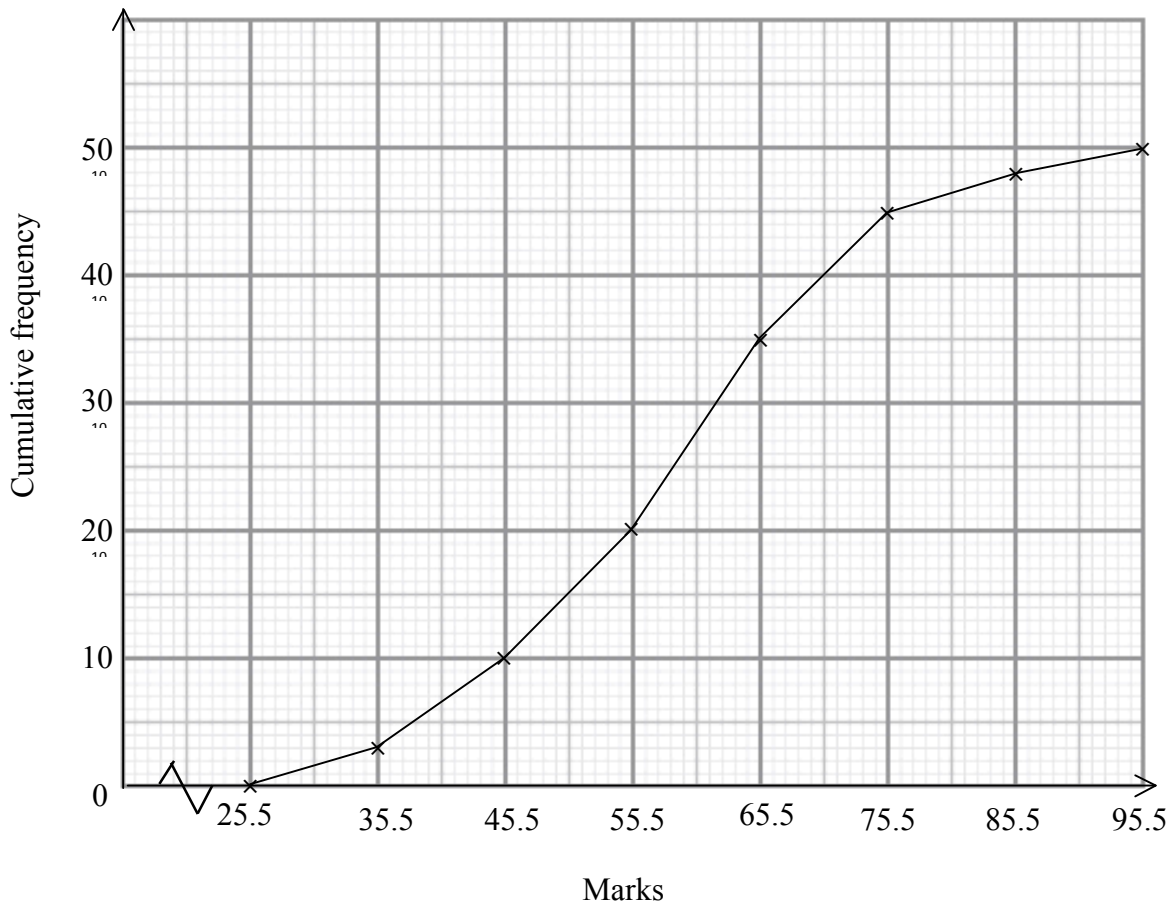
1. Write your examination number in the spaces provided on the top right corner of this cover page.
2. The total mark of this section is 40.
3. Attempt ALL questions in this section.
Write your answers in the spaces provided in this Question-Answer Book. The last page is a supplementary answer sheet.
4. All working must be clearly shown.
5. Unless otherwise specified, numerical answers should be either exact or correct to **3 significant figures**.
6. The diagrams in this paper are not necessarily drawn to scale.
7. Use of HKEAA approved calculators is allowed.

Question No.	Marks
1	(9)
2	(12)
3	(10)
4	(9)
Supp. Sheet	
Section C Total	(40)

Section C [40 marks]

1. The cumulative frequency polygon below shows the marks of Mathematics Examination scored by a group of students.

Marks scored by a group of students in Mathematics Examination



(a) Complete the following frequency distribution table for the Mathematics marks.

(2 marks)

Marks	26 –						
Frequency	3						2

(b) Find the mean mark of the Mathematics examination.

(2 marks)

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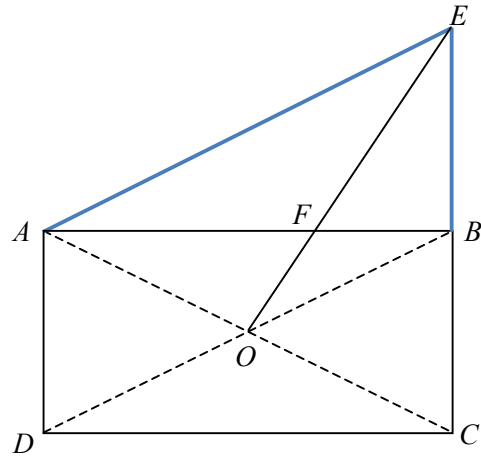
Answers written in the margins will not be marked

(c) Mr Lee's allowance for the current year is also \$168 000. His monthly salary was \$120 000 three years ago. His monthly salary increased at a rate of r % per year, where r is a positive integer. Mr Lee does not need to pay salaries tax at standard rate this year. Find the possible values of r . (3 marks)

Lined area for writing answers.

Answers written in the margins will not be marked

4. (a) $ABCD$ is a rectangle where $AD = (8 - 2x)$ cm and $AB = 8x$ cm. The diagonals of the rectangle intersect at O . Given that $OA = (5x - 1)$ cm. Find the possible value(s) of x . (3 marks)



- (b) The line CB is produced to E such that $BE = CB$.

(i) Find the length of FB .

(4 marks)

Answers written in the margins will not be marked

(ii) A student claims that CF bisects $\angle ACE$, do you agree with him? Explain your answer.

(2

marks)

Answers written in the margins will not be marked

Supplementary Answer Sheet

Answers written in the margins will not be marked

- End of Section C -