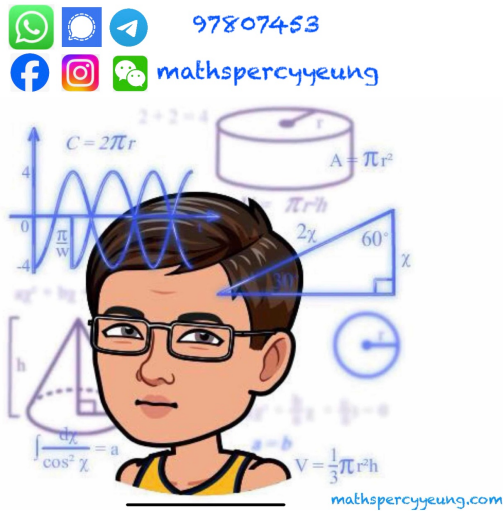




Grade: 8

Subject: Mathematics

Paper: I

Time Allowed: 1 hour 15 minutes

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_____ / 75

This paper must be answered in English

INSTRUCTIONS

1. This paper consists of Section A and Section B. Section A carries 50 marks. Section B carries 25 marks.
2. Answer all the questions.
3. Use of an HKEAA approved calculator is allowed.
4. The diagrams in this paper are not necessarily drawn to scale.
5. Write your mathematical expressions, answers and statements/conclusions in the spaces provided. There is NO need to show the rough work.
6. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
7. Do your rough work in the rough worksheet provided.

Teacher's Use Only		
Question No.	Max. marks	Marks
Section A		
1	3	
2	3	
3	4	
4	3	
5	5	
6	5	
7	3	
8	5	
9	4	
10	6	
11	5	
12	4	
Sub-total	50	
Section B		
13	6	
14	9	
15	10	
Sub-total	25	

Section A (50 marks)

1. Simplify $\frac{3}{6x-1} + \frac{5}{4-7x}$.

(3 marks)

[illegible]

2. If $(x + 4)(2x - 3) - P \equiv 2x^2 + Qx + 5$, where P and Q are constants, find the values of P and Q . (3 marks)

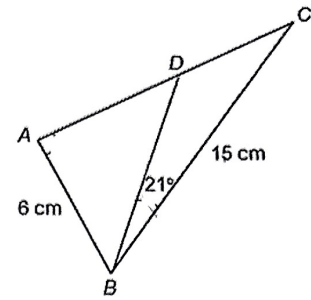
(3 marks)

[illegible]

3. In the figure, ADC is a straight line.

(4 marks)

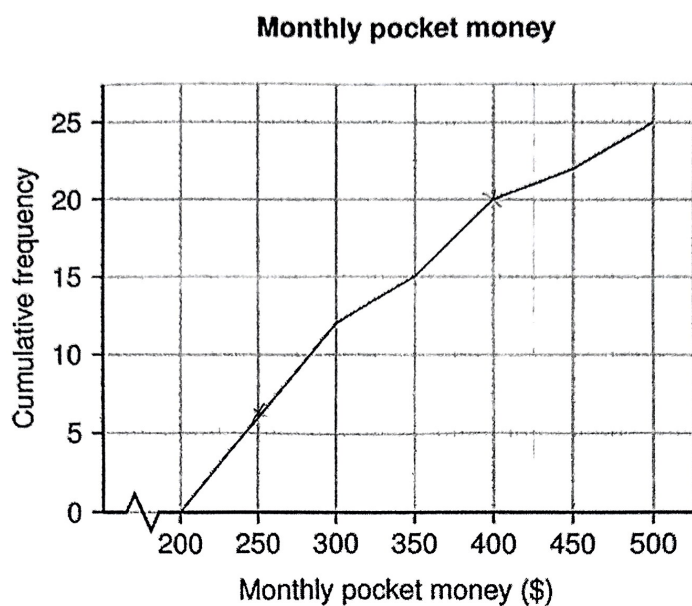
- (a) Find $\angle ABD$.
 (b) Find the length of BD .



4. Make b the subject of the formula $\frac{a-5}{4} = \frac{b+2}{3}$.

(3 marks)

5. The cumulative frequency polygon below shows the monthly pocket money (in \$).



- How many children have a monthly pocket money of \$250 or more, but less than \$400? (2 marks)
- Find the 60th percentile. (1 mark)
- Mr Lee claims that among these children, 20% of them have a monthly pocket money of \$400 or more. Do you agree? Explain your answer. (2 marks)

6. Factorize the following expressions.

(a) $2ab - 4a - 3b + 6$

(2 marks)

A series of horizontal lines for handwriting practice. Each row consists of a solid top line, a dashed midline, and a solid bottom line. There are five such rows in total, providing a guide for letter height and placement.

(b) $(a - b)^2 - 9b^2$

(3 marks)

7. If h and k are non-zero numbers such that $2h:(3h-2k)=5:6$, find $h:k$.

(3 marks)

[illegible]

8. The volume of a carton of milk is measured as 1.5 L, correct to the nearest 0.1 L. Suppose the carton of milk is shared with n children such that each child receives a glass of milk, measured as 207 mL correct to the nearest mL.

(a) Find the lower and upper limits of the actual volume of a carton of milk. (2 marks)

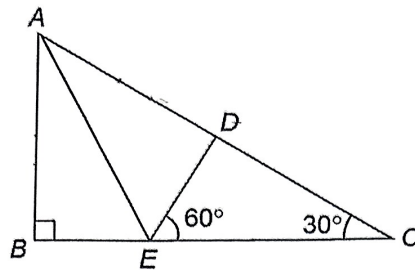
(b) Find the greatest possible value of n . (3 marks)

This image shows a single sheet of white paper with horizontal blue 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.

9. Simplify $\sqrt{50} + \frac{3}{\sqrt{18}}$ and rationalize the denominator of the result if necessary. (4 marks)

[illegible]

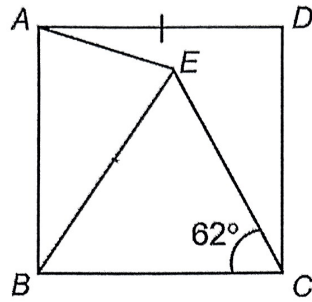
10. In the figure, D is a point on AC such that $AB = AD$. E is a point on BC .



- (a) Prove that $\triangle ABE \cong \triangle ADE$. (3 marks)
- (b) Are the lengths of AE and CE equal? Explain your answer. (3 marks)

[illegible]

11. In the figure, $ABCD$ is a square and $AD = BE$. Find $\angle BAE$. (5 marks)

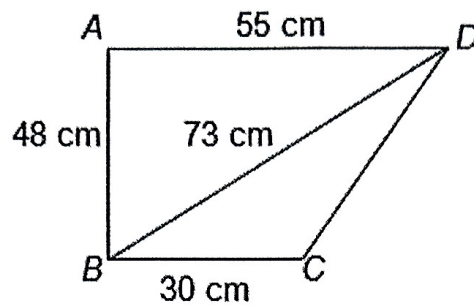
This image shows a full page of handwriting practice paper. It features multiple sets of horizontal dashed lines spaced evenly down the page, providing a guide for letter height and placement. The background is white, and there are no other markings or text present.

12. Solve the simultaneous equations $\begin{cases} 7x + 5y = 4 \\ 4x + 3y = 3 \end{cases}$ by any algebraic method. (4 marks)

This image shows a full page of white paper designed for handwriting practice. It features approximately 20 horizontal dashed lines spaced evenly across the page. There are no margins, text, or other markings present.

Section B (25 marks)

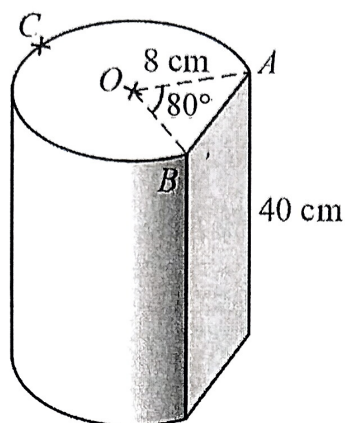
13. In the figure, $ABCD$ is a trapezium, where $AD \parallel BC$. It is given that $AB = 48$ cm, $AD = 55$ cm, $BC = 30$ cm and $BD = 73$ cm.



- (a) Prove that $\triangle ABD$ is a right-angled triangle. Hence, find the area of $ABCD$. (4 marks)
- (b) If E is a point on BD such that $CE \perp BD$, find the length of CE . (2 marks)

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

14. The solid in the figure is part of a right cylindrical metal bar of base radius 8 cm. O is the centre of the sector $OACB$.

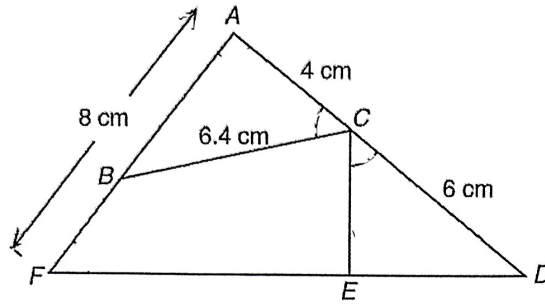


- (a) Find the length of AB . (3 marks)
- (b) Find the length of $\widehat{ACB}$. Express your answer in terms of π . (2 marks)
- (c) Find the total surface area of the solid. (4 marks)

[illegible]

A series of horizontal dashed lines for writing.

15. In the figure, ABF , ACD and DEF are straight lines. $\angle ACB = \angle DCE = \angle BFE$, $AC = 4$ cm, $CD = 6$ cm, $BC = 6.4$ cm and $AF = 8$ cm.



- (a) Write down two triangles which are similar to $\triangle AFD$ and give proofs to justify your answer. (4 marks)
- (b) Find AB . (2 marks)
- (c) Find DE and EF . (4 marks)

[illegible]

Handwriting practice lines consisting of 25 horizontal dashed lines.

END OF PAPER