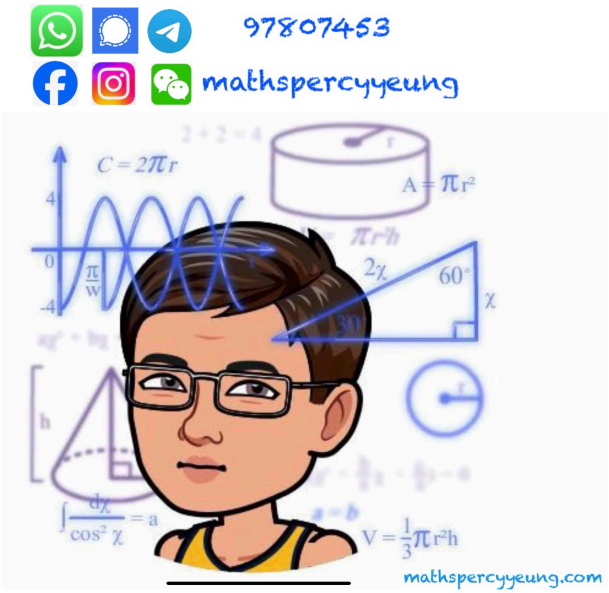
CCK 2023-2024 Final S1 paper two

No. of pages: 13

Question-Answer Book

Time allowed : 1 hour
Total Marks: 100



INSTRUCTIONS

1. Write your name, class and exam number in the spaces provided on Page 1.

2. This paper consists of three sections, A(1), A(2) and B.

3. Attempt ALL questions in Sections A(1), A(2) and B. Write your answers in the spaces provided in this Question-Answer Book. Do not write in the margins.

4. Unless otherwise specified, the use of HKEAA approved electronic calculators is allowed.

5. Unless otherwise specified, all working must be clearly shown.

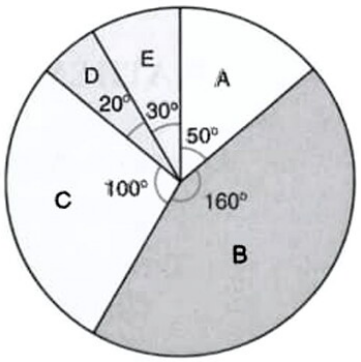
6. Unless otherwise specified, numerical answers should be exact or correct to 3 significant figures.

7. The diagrams in this paper are not necessarily drawn to scale.

Section A(1) (40 marks)

1. The pie chart below shows the conduct grades obtained by S1C students in a school. There are 36 students in S1C. Find the number of students getting grade E. (3 marks)

Conduct grades obtained by S1C students in a school



2. The stem-and-leaf diagram below shows the scores of a group of students in an English test.

Scores of a group of students in an English test

Stem (10)	Leaf (1)
5	7 8
6	0 0 1 3 7 8 9
7	
8	5

(a) Write down the number of students in the group. (1 mark)

(b) Find the average score of the students in the test. (2 marks)

3. Complete the following table.

	Original Value	Number of significant figures	Approximated Value
(a)	1 234 096	_____	_____ (round up to nearest thousand)
(b)	10. 006	_____	_____ (round off to 1 decimal place)
(c)	0. 000 261 3	_____	_____ (round down to 3 significant figures)

(6 marks)

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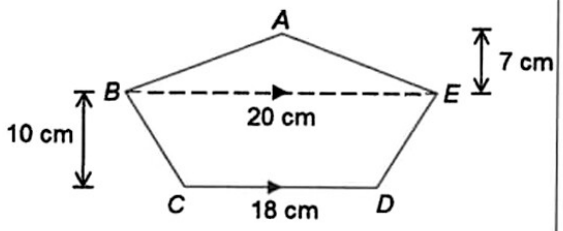
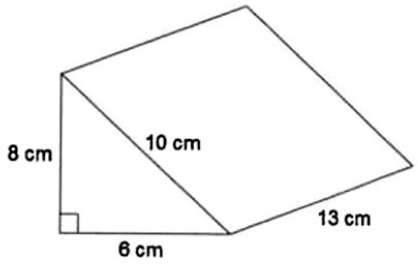
4. Find the area of polygon *ABCDE* in the figure. (3 marks)



5. The figure shows a right prism with a right-angled triangle base.

(a) Find the volume of the prism. (2 marks)



(b) Find the total surface area of the prism. (2 marks)

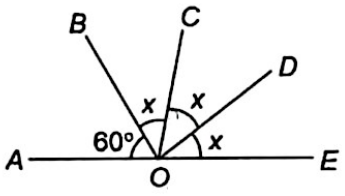
6. Find the value of the polynomial $3x^2 + 9x - 1$ by substituting $x = 2$. (2 marks)

7. Complete the following table.

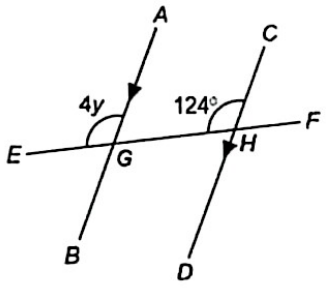
Polynomial	Number of terms	Coefficient of			Constant term	Degree of polynomial
		x^3	x^2	x		
$8x^2 + x - 2$	_____	_____	_____	_____	_____	_____

(6 marks)

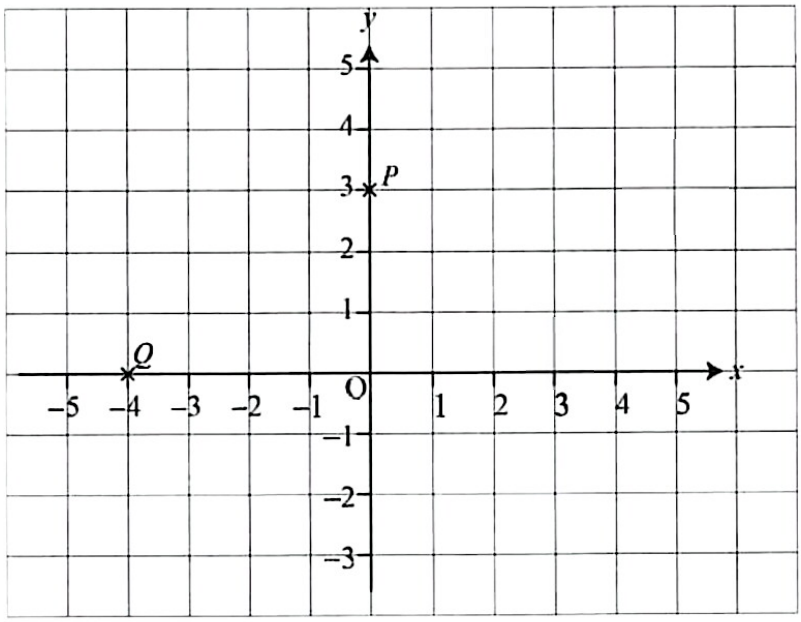
8. In the figure, AOE is a straight line. Find the value x. (3 marks)



9. In the figure, AGB, CHD and $EGHF$ are straight lines, and $AB \parallel CD$. Find y. (3 marks)



10. The figure below shows a rectangular coordinate plane.



(a) Write down the coordinates of P and Q. (2 marks)

P: Q:

(b) **Plot** the points $R(3, 0)$ and $S(5, 3)$ on the above rectangular coordinate plane. (2 marks)

(c) Mr. Lee suggested that the area of the polygon $PQRS$ is 18 square units. Do you agree with him? Explain your answer. (3 marks)

Answers written in the margins will not be marked.

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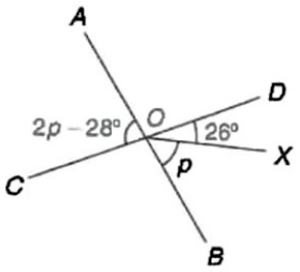
Section A(2) (30 marks)

11. (a) Simplify $\frac{-14m^5}{(-4m)m^6}$. (3 marks)

(b) Without using calculator, find the value of $3^{20} \div 3^{24} \times 3^6$. (2 marks)

12. Expand the expression $(a + 3)(3 - 4a)$. (3 marks)

13. In the figure, AB and CD intersect at O. Find the value of p. (3 marks)



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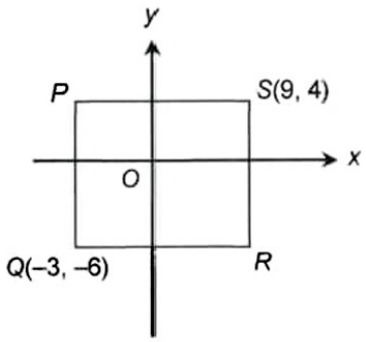
14. In the figure, $PQRS$ is a rectangle and PS is parallel to the x-axis.



(a) Write down the coordinates of P. (1 mark)

(b) Find the perimeter of rectangle $PQRS$. (2 marks)

15. There are 6 persons in a lift and their weights (in kg) are shown below:

61.2 59.2 74.8 58.9 66.6 72.7

(a) Estimate the total weight of the 6 persons by rounding up the weight of each person to 1 significant figure. (2 marks)

(b) It is given that the maximum load of the lift is 420 kg. Using the result of (a) determine whether the lift will be overloaded for carrying these 6 persons. Explain your answer. (2 marks)

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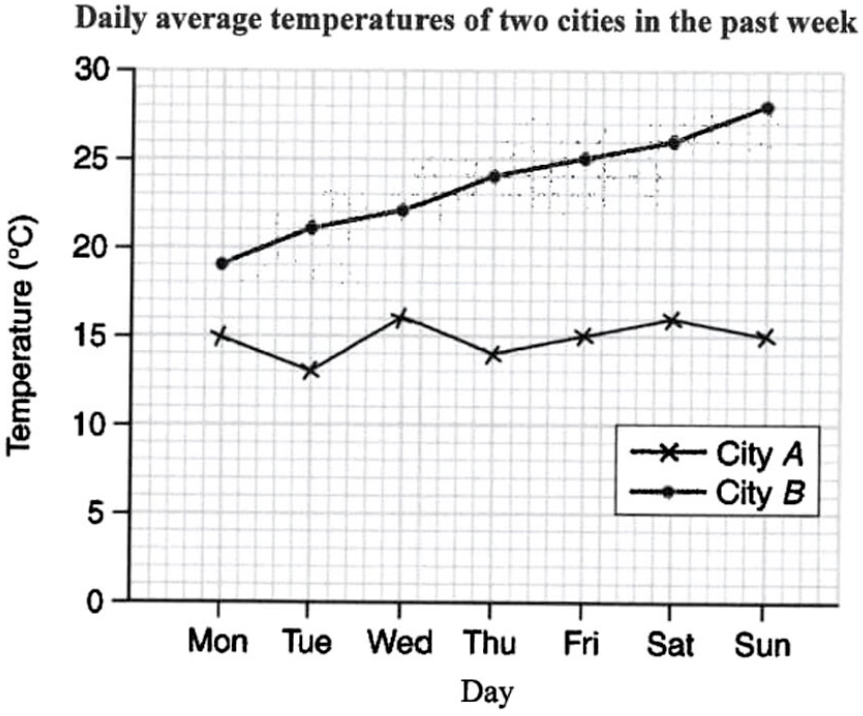
16. The broken line graphs below show the daily average temperatures of two cities in the past week.



(a) What is the largest difference in the average temperatures between the two cities? (2 marks)

(b) Find the change in the average temperatures in City *B* from Monday to Sunday? (2 marks)

(c) Mr. Lee suggested that there is a positive percentage change in the average temperatures in City *A* from Monday to Sunday. Do you agree with him? Explain your answer. (2 marks)

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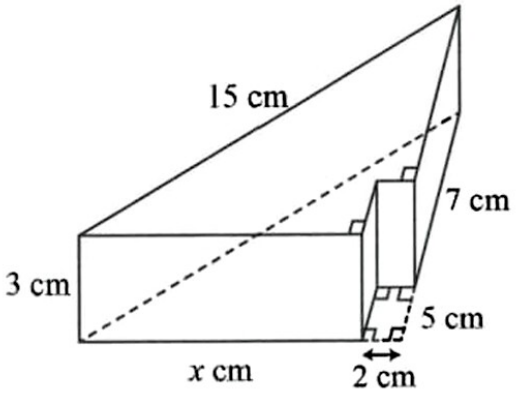
17. In the figure, the volume of the right prism is 132 cm^3.

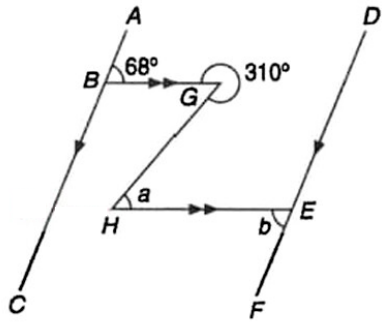


(a) Express and simplify the base area of the prism in terms of x. (3 marks)

(b) Hence, find the value of x. (3 marks)

Section B (30 marks)

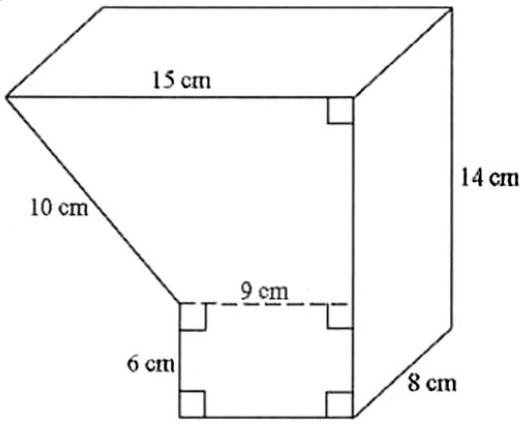
18. In the figure, ABC and DEF are straight lines. $AC \parallel DF$ and $BG \parallel HE$.



(a) Find the value of a. (4 marks)

(b) By extending HE to AC, or otherwise, find the value of b. (3 marks)

19. The figure shows a right prism.

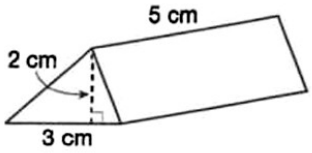


(a) Sketch the base of the prism in the box below. (1 mark)

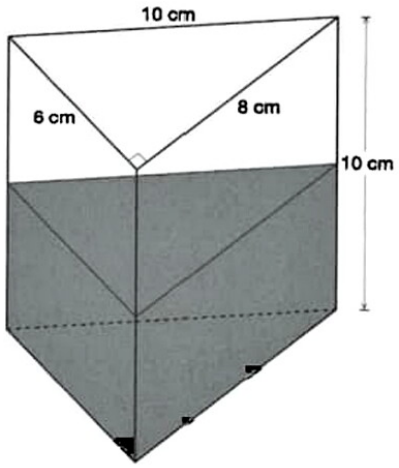
(b) Find the total surface area of the prism. (4 marks)

Answers written in the margins will not be marked.

20. (a) Find the volume of the triangular block in the figure. (1 mark)



(b) The figure shows a water tank in the shape of a regular triangular prism. The depth of the water in the tank is h cm.



(i) Express and simplify the volume of water in terms of h. (2 marks)

(ii) If the water is of depth 5 cm and 10 blocks in (a) are put into the tank and totally immersed in the water, will the water overflow? Explain your answer. (3 marks)

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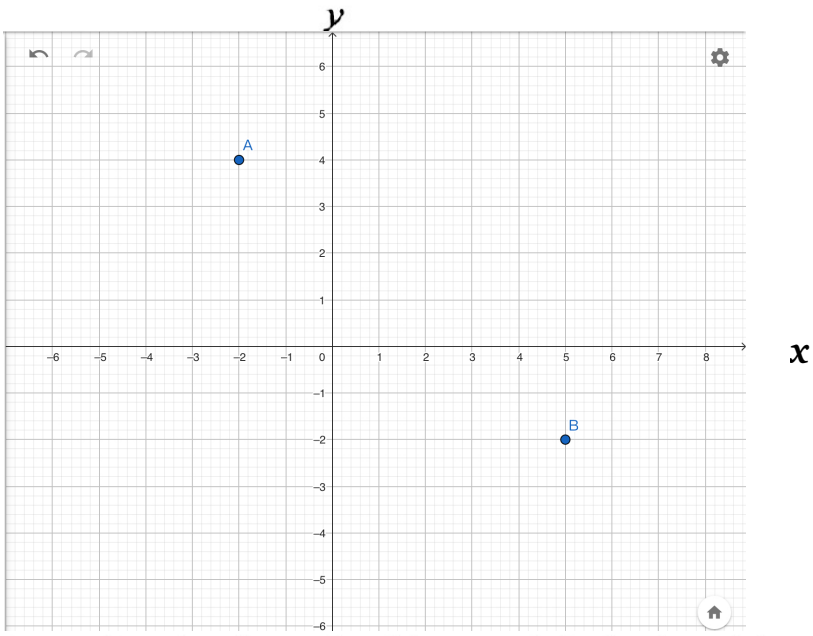
21. The figure below shows a rectangular coordinates plane.



(a) The coordinates of C are $(4, -2)$. C is translated downwards by 3 units and then reflects about the y-axis to the point D. Plot the point D on the above figure. (1 mark)

(b) Find the area of the triangle ABD. (5 marks)

22. The following back-to-back stem-and-leaf diagram shows the high jump distances of 15 students before and after training.

High jump distances of 15 students

Before Training Leaf (1 cm)	Stem (10 cm)	After training Leaf (1 cm)
8 6 6 4 4	10	
6 4 4 2 0 0	11	6
8 2 0	12	0 0 2 2 4 6 6 8
2	13	0 2 4 4 4 8

(a) Find the percentages of students with high jump distances over 120 cm before and after training respectively. (4 marks)

(b) A teacher claims that at least two-thirds of the students show improvement in high jump distances after training. Do you agree? Explain your answer. (2 marks)

Answers written in the margins will not be marked.

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