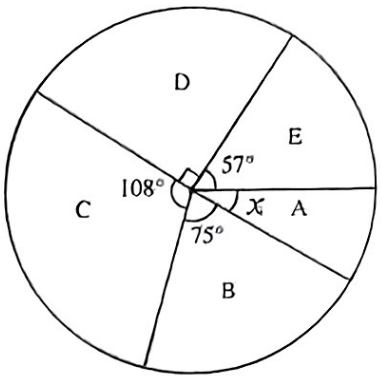
FINAL EXAM. (2019-2020) **S.1 MATH**

Section A (50 marks) : Working steps must be shown in answering questions.

1. The following pie chart shows the grades obtained by 120 students in a test.

Grades obtained by 120 students



(a) Find the value of x.

(b) Find the total number of students who obtained grade A and grade B.

(4 marks)

2. The following data show the numbers of light bulbs sold in a shop in the past 30 days.

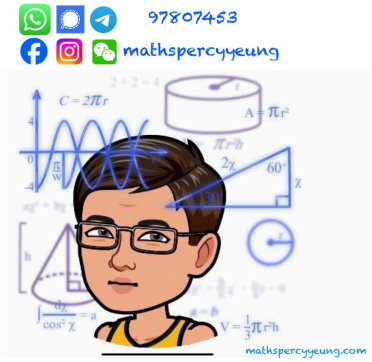
105	127	131	140	114	109	129	123	132	138	124	132
137	125	119	127	111	131	115	144	141	108	127	136
128	138	105	140	119	120						

(a) Complete the following stem-and-leaf diagram to present the data.

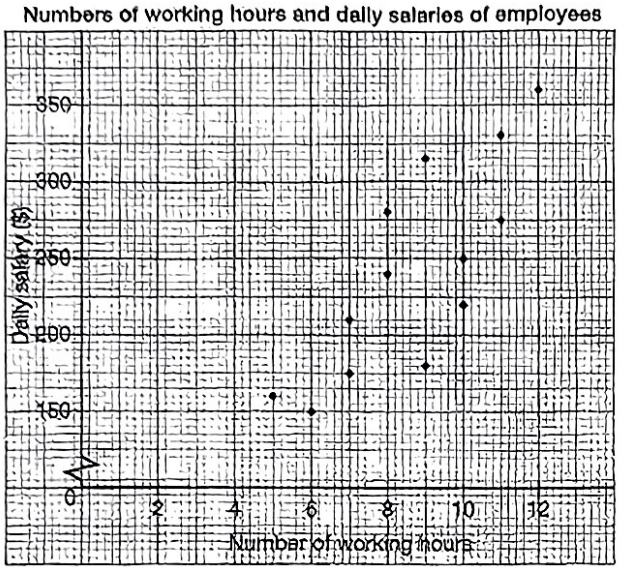
Stem (10)	Leaf (1)
10	
11	1 4 5 9 9
12	0 3 4 5 7 7 7 8 9
	1 1 2 8 8
14	0 0 1 4

(b) In how many days were less than 120 light bulbs sold?

(5 marks)



3. Ken collected the numbers of working hours and the daily salaries of employees in a company to construct a scatter diagram as shown below.



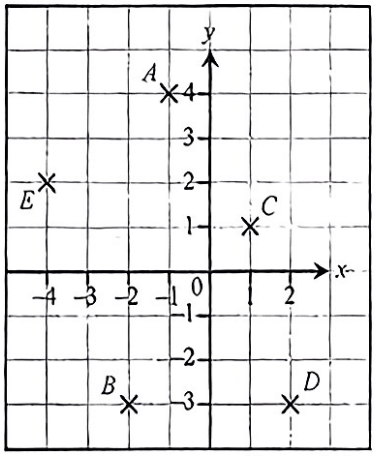
(a) How many employees were there in the company?

(b) For how long did the employee work to earn a daily salary of $315?

(c) Describe the relation between the two types of data.

(3 marks)

4. (a) Write down the coordinates of all the marked points in the figure. (2 marks)



A: $(-1,4)$

B: _____

C: _____

D: _____

E: _____

(b) Find the distance of *BD*. (2 marks)

5. (a) Write down the polar coordinates of all the marked points in the figure. (2 marks)

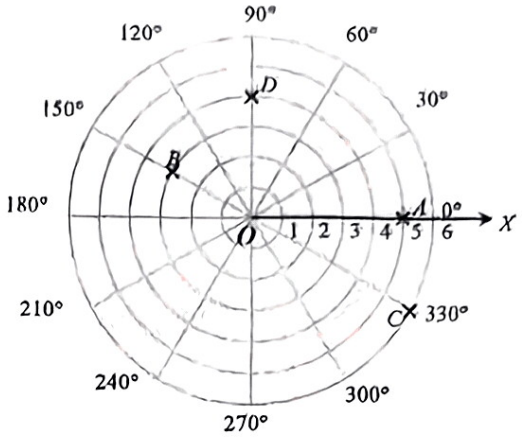
out syl.

A: (5,0°)

B: _____

C: _____

D: _____

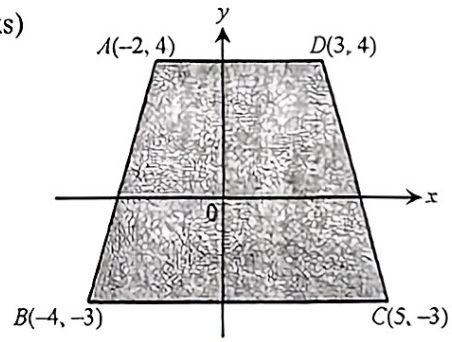


(b) Find $\angle BOC$. (2 marks)

(c) Write down the distance between point B and point C. (1 mark)

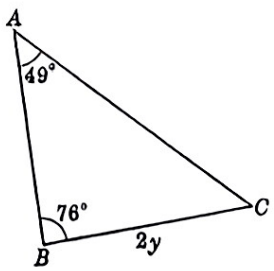
6. In the figure, $ABCD$ is a trapezium, where $AD//BC$.

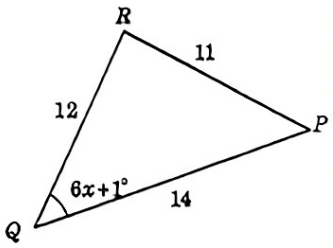
(a) Write down the length of the line segments AD and BC. (2 marks)



(b) Find the area of the trapezium $ABCD$. (3 marks)

7. In the figure, $\triangle ABC \cong \triangle QRP$. Find x and y → F 2 (4 marks)





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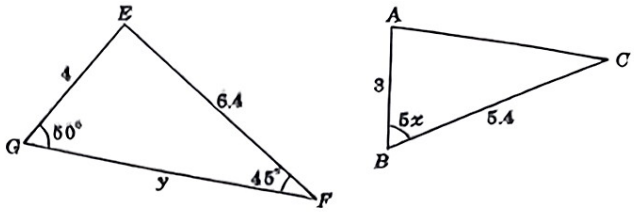
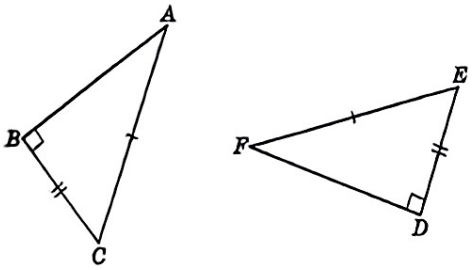
8. In the figure, $\triangle EFG \sim \triangle ACB$. Find x and y. → F 2 (4 marks)



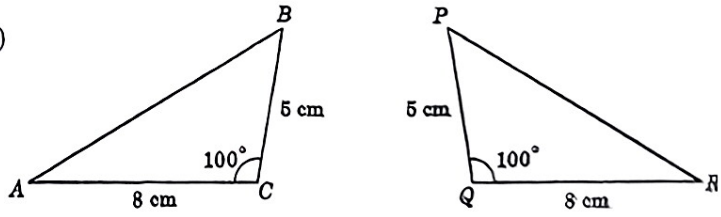
9. Write down the pairs of congruent triangles and give reasons. → F 2 (6 marks)

(a)



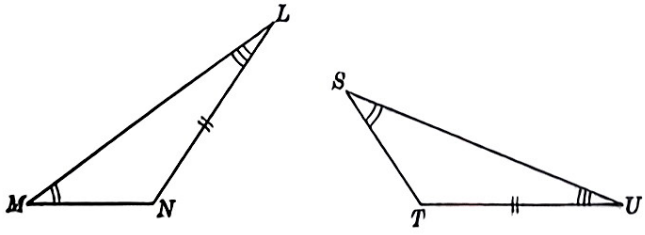
$\triangle ABC \cong$ _____( )

(b)



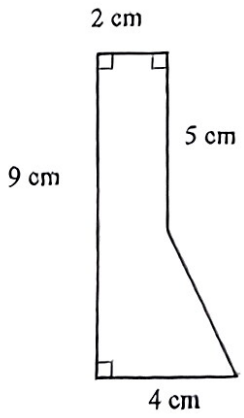
_____( )

(c)



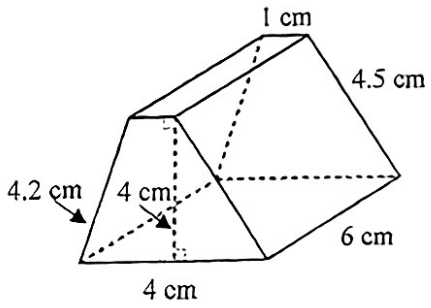
_____( )

10. In the figure, find the area of the polygon. (3 marks)



11. In the figure below,

(a) find the volume of the prism, and (3 marks)



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

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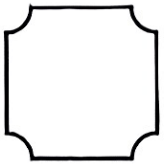
Q12-Q16 out 5q!

Section B (50 marks) ; Working steps must be shown in answering questions in this section.

12. Draw all the axes of symmetry of each of the following figures. (3 marks)

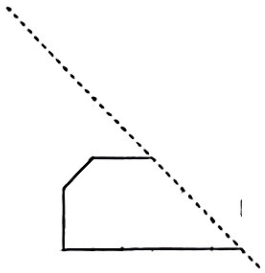
(a) (b)



13. Does the following figure have rotational symmetry? If it does, write down the order of rotational symmetry.

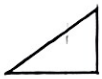
(2 marks)

14. Complete the following figure such that it has reflectional symmetry about the dotted line.



(2 marks)

15. Draw the image of the figure after translating it to the right by 2 units and then downwards by 4 units.



(2 marks)

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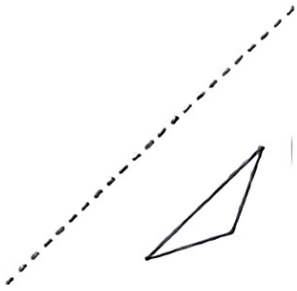
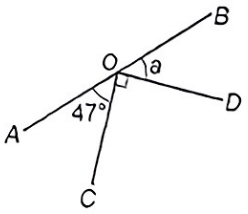
16. In the figure, draw the image after the figure is reflected about the dotted line. (2 marks)



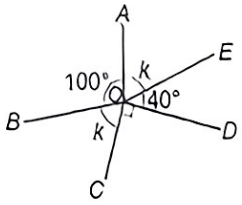
17. $C(9, 8)$ is translated to the left by 9 units and then downwards by 5 units to become C'. Find the coordinates of C'. (2 marks)

18. $A(11, 3)$ is reflected about the y-axis to A'. Write down the coordinates of A'. (2 marks)

19. In the following figure, AOB is a straight line. Find the unknown a. (3 marks)



20. In the following figure, find the unknown k. (3 marks)



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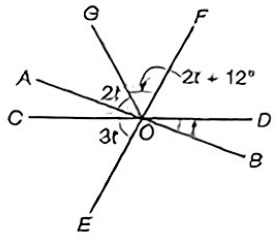
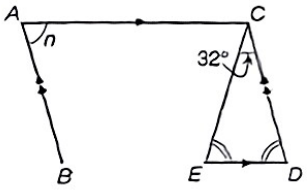
21. In the figure, AOB, COD and EOF are straight lines. Find t. (5 marks)



22. In the figure, $BA \parallel DC$ and $AC \parallel ED$. Find n. (5 marks)



23. An athlete runs 3000 m in 10 minutes. Find the speed of the athlete in the unit m/s. → F2 (3 marks)

24. Simplify each of the following ratios. → F2 (3 marks)

(a) 70 : 10

(b) $\frac{3}{10} : \frac{7}{5}$

Answers written in the margins will not be marked.

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