Name	
Class	
Class Number	

F.1 FINAL EXAMINATION 2020-2021

MATHEMATICS PAPER 1

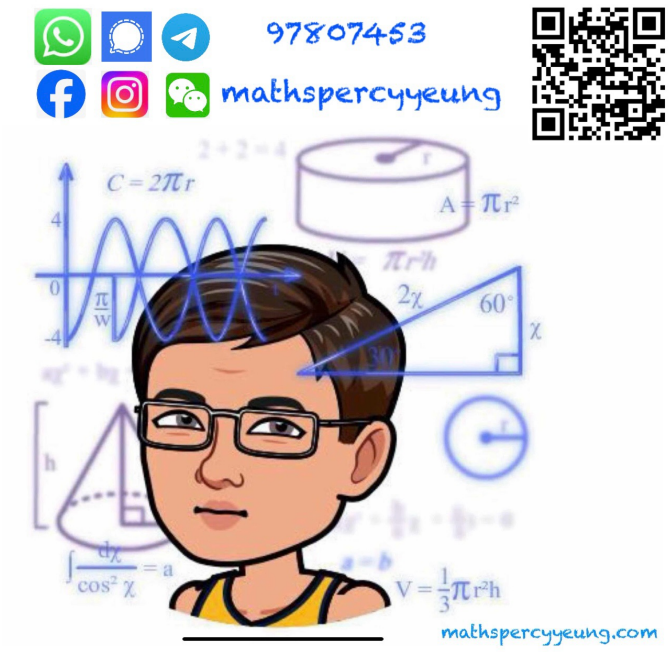
Question-Answer Book

8:25 am – 9:40 am (1 hour 15 mins)

FULL MARKS : 100

INSTRUCTIONS

1. Write your name, class and class number in the spaces provided on this cover.
2. Attempt ALL questions in this paper.
3. Unless otherwise specified, all working must be clearly shown.
4. The diagrams in this paper are not necessarily drawn in scale.



1. Calculate (a) $5+(2)(-7)-(-3)$, (b) $\dfrac{\frac{15}{28}}{\left(1\frac{1}{2}\right)^2-1}$.

(6 marks)

2. Solve (a) $x-18=4x-(3-2x)$, (b) $\dfrac{4m}{3}+\dfrac{3-2m}{4}=2$.

(7 marks)

3. (a) Round up 12.3 to the nearest integer. _____

(b) Round down 50.988 to 2 decimal places. _____

(c) Round off 72.445 to 4 significant figures. _____

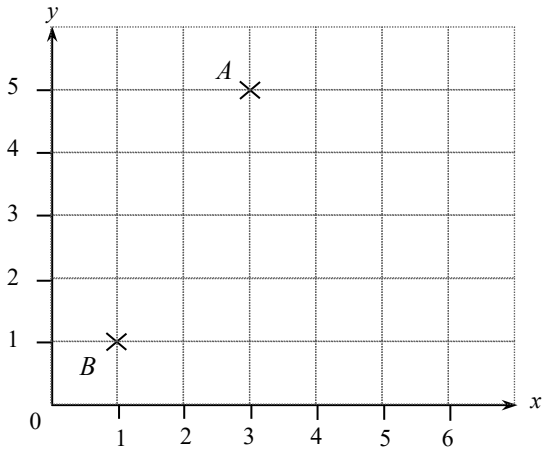
(3 marks)

4. It is given that $2as = v^2 - u^2$. Find s if $v = 10$, $u = 8$ and $a = -2$. (4 marks)

5. (a) Express 36 and 54 as products of prime factors.
(b) Use the result of (a), find the L.C.M. of 36 and 54.
(c) Write down the largest 3-digit number that is a common multiple of 36 and 54.

(7 marks)

6. The figure shows 2 points, A (3, 5) and B, on a coordinate plane.



(a) Write down the coordinates of B.

(b) C (4, 1) is a point on the plane.

(i) Mark C on the plane.

(ii) Find BC.

(iii) D is a point on the plane such that $ABCD$ is a parallelogram. Mark D on the plane.

(5 marks)

7. There are 160 F.1 students in a school. 45% of them are boys and 75% of boys wear glasses.

(a) Find the number of boys wearing glasses.

(b) If 50 F.1 girls in the school wear glasses, find the percentage of the F.1 students wearing glasses.

(6 marks)

8. Adrian, Bryan and Calvin share x sweets such that Adrian's share : Bryan's share = 2 : 3 and Bryan's share : Calvin's share = 5 : 3.

(a) Find Adrian's share : Bryan's share : Calvin's share.

(b) If Adrian has 2 sweets more than Calvin, find x.

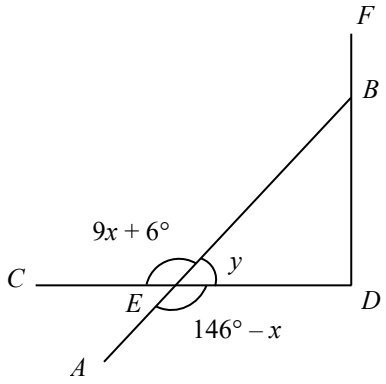
(7 marks)

9. In the figure, AEB, CED and DBF are straight lines.

(a) Find x and y.

(b) If $\angle BEC = 3\angle DBE$, is $FD \perp CD$? Explain your answer.

(7 marks)



10. The back-to-back stem-and-leaf diagram shows the Chinese test scores of students in Group A and Group B.

Chinese test scores of students

Group A						Group B		
			Leaf (units)		Stem (tens)	Leaf (units)		
	8	6	6	4	4	0	1	8
			5	0	5	1	7	
			8	7	6			
		9	6	5	7	6	6	
7	6	4	4	1	8	4	7	
			2	x	9	1	5	8

(a) Write down the number of students in Group B.

(b) Write down all possible values of x.

(c) It is given that the passing mark of the test is 50.

(i) Find the passing percentage of Group B.

(ii) Someone claims that the passing percentage of Group A is higher than that of Group B. Do you agree? Explain your answer.

(8 marks)

11. The following table shows the time used by 40 students on using electronic devices during class suspension. Peter uses the data to construct a histogram. Part of the histogram is shown in Figure (11) below.

Time (mins)	Class mark (mins)	Frequency
61 – 90	75.5	8
$x - y$	105.5	12
121 – 150	135.5	z
151 – 180	165.5	9

Time used on using electronic devices

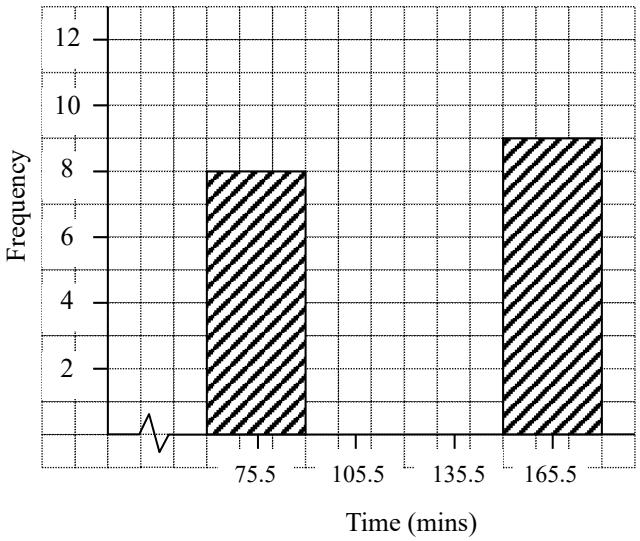


Figure (11)

(a) Write down the values of x, y and z.

(b) Write down the lower and upper class boundaries of the group "121 mins – 150 mins".

(c) Complete the histogram in Figure (11).

(7 marks)

12. The cost of a toy is \$125. If the toy is sold at the marked price, the profit percentage is 80%.

(a) Find the marked price.

(b) If the toy is sold at 40% discount, find the profit percentage.

(6 marks)

13. Figure (13a) shows a right prism with the base of a right trapezium.

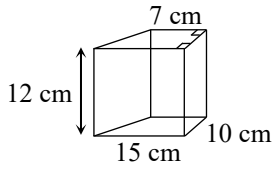


Figure (13a)

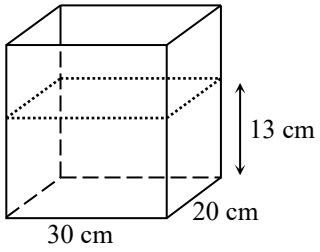


Figure (13b)

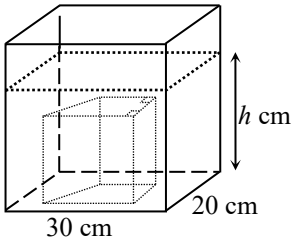


Figure (13c)

(a) Find the volume of the prism.

(b) In Figure (13b), a rectangular tank contains water to a depth of 13 cm. In Figure (13c), the prism in Figure (13a) is completely immersed in the water in the tank. Find h.

(6 marks)

14. A (3, 2) and B (2, 4) are two points on a coordinate plane. A is rotated clockwise about the origin through 90° to A'.

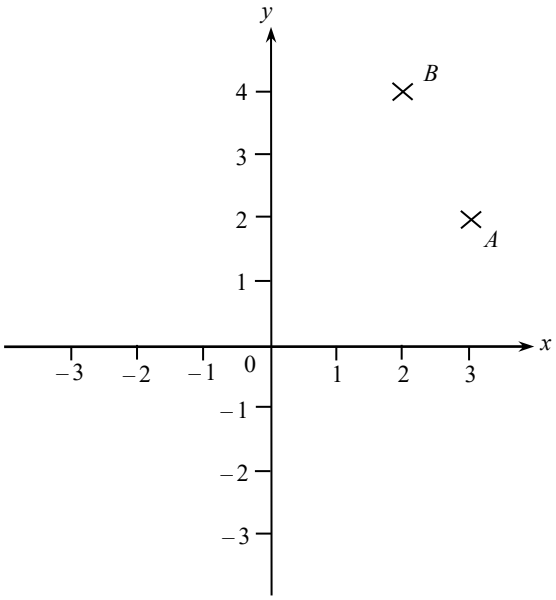
(a) Write down the coordinates of A'.

(b) B is reflected with respected to the y-axis to B'.

(i) Write down the coordinates of B'.

(ii) Find the area of $AA'B'B$.

(7 marks)



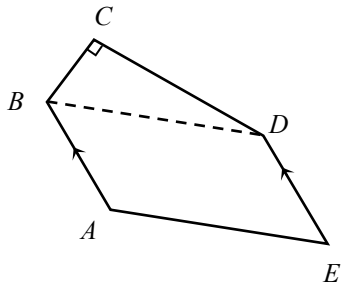
15. It is given that the general term of a sequence is $T_n = 3n - 264$.

(a) Find T_1 and T_2.

(b) There are k negative terms in the sequence. Find k.

(6 marks)

16. In the figure, AB // ED and $\angle BCD = 90°$.



(a) Show that $\angle ABC + \angle CDE = 270°$.

(b) It is given that reflex $\angle DEA = 300°$ and $\angle ABC = \angle BDE = 4\angle CDB$.

Is $ABDE$ a parallelogram? Explain your answer.

(8 marks)

End of Paper