19-20 F.4
2nd TERM UT
MATH CP
PAPER 1

2019 – 2020
Form 4 Second Term Uniform Test

MATHEMATICS Compulsory Part

PAPER 1

Question–Answer Book

9 th June, 2020
(55 minutes)
This paper must be answered in English

INSTRUCTIONS

1. Write your name, class and class number in the spaces provided on this cover.

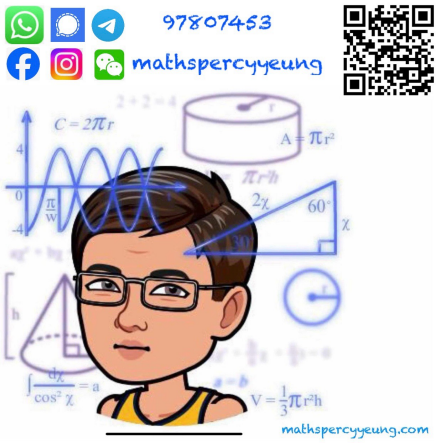
2. This paper consists of THREE sections, A(1), A(2) and B.

3. Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question – Answer Book. Do not write in the margins. Answers written in the margins will not be marked.

4. Unless otherwise specified, 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.



Sections	Marks
A (1 – 3)	
A (4 – 6)	
A Total	**/26**
B Total	**/13**
TOTAL	**/39**

Section A(1) (13 marks)

1. Simplify $\dfrac{(a^{-2}b^5)^3}{a^4b^7}$ and express your answer with positive indices. (3 marks)

2. Make y the subject of the formula $x = \dfrac{ky - x}{2 - y}$. (3 marks)

Answers written in the margins will not be marked

Answers written in the margins will not be marked

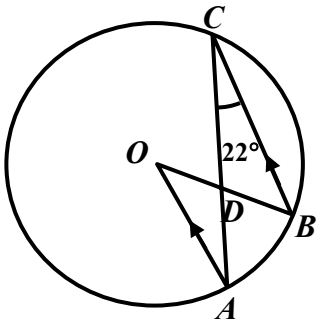
3. Factorize

(a) $a^2 + 3a - 10$;

(b) $a^2 + 3a - 10 - 3ab + 6b$.

(3 marks)

4. In the figure, O is the centre of the circle ABC, AO // BC, $\angle ACB = 22°$, find $\angle CDB$. (4 marks)



Answers written in the margins will not be marked

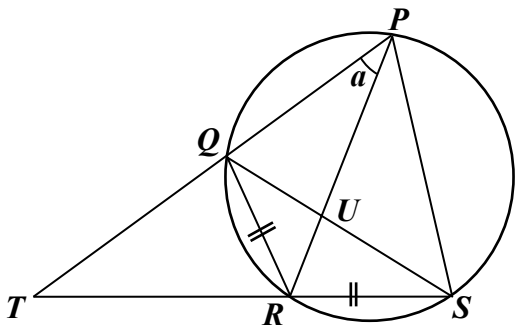
Answers written in the margins will not be marked

Section A(2) (13 marks)

5. In the figure, PQ and SR are produced to meet at T. PR and QS intersect at U. $RQ = RS$ and $\angle QPR = a$. If $\angle QTR = 90° - 2a$,

   (a) express $\angle PQU$ in terms of a, (3 marks)

   (b) determine whether PR is a diameter of the circle. (2 marks)



Answers written in the margins will not be marked

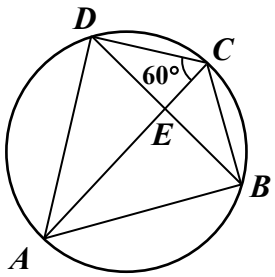
Answers written in the margins will not be marked

6. In the figure, AC is a diameter and $\angle DCA = 60°$.

(a) Find $\angle DBA$ and $\angle CBD$. (3 marks)

(b) Find $AD : CD$ (2 marks)

(c) Is $AD : CD = AD : CD$? Explain your answer. (3 marks)



Answers written in the margins will not be marked

Answers written in the margins will not be marked

Section B (13 marks)

7. Solve the equation $7^{3x+2} = \frac{1}{\sqrt{7}}$. (3 marks)

8. Solve the equation $2^{x+2} - 2^x + 3(2^{x-1}) = \frac{9}{16}$. (3 marks)

Answers written in the margins will not be marked

Answers written in the margins will not be marked

9. Simplify $\dfrac{\log x^2 - \log \sqrt{x}}{2 \log x}$, where $x > 0$ and $x \neq 1$. (3 marks)

Answers written in the margins will not be marked

Answers written in the margins will not be marked

10. Let a and b be constants. Denote the graph of $y = 2\log_a x + b$ as G. It is given that G passes through (8, 2) and the x-intercept of G is 2. Find the values of a and b. (4 marks)

End of Paper

Answers written in the margins will not be marked

Answers written in the margins will not be marked