TT F2 2023-2024 Test 7

School TT (2023 – 2024)

S.2 Mathematics Chapter Test 7

Chapter 10 (10.5, 10.6), Chapter 11 (11.1, 11.2)

Name: _____ ( ) Class: S.2_____ Time: 30 min

Mark: / 40 + 4
- P.P
Parent Signature:

Instructions: i. Marks will be deducted when steps are missing or unclear.
ii. Put **ALL** the answers in the spaces provided.
iii. Unless otherwise specified, numerical answers should be given in EXACT or correct to 3 significant figures.

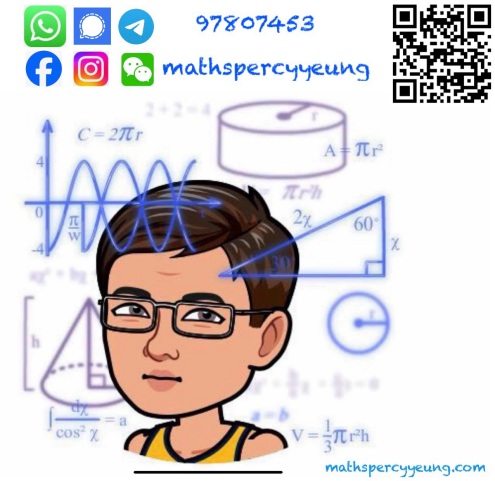
Section A Multiple Choice Questions (12 marks)

Please fill your answers in the following table.

1.	2.	3.	4.	5.	6.

1. 0.000 976 543 2 =

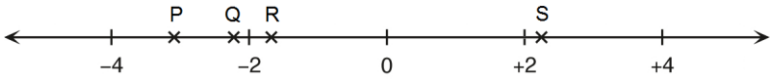
A. 0.000 976 (correct to 3 significant figures).
B. 0.000 977 5 (correct to 4 decimal places).
C. 0.000 976 54 (correct to 5 significant figures).
D. 0.000 976 543 (correct to 6 decimal places).



2. $x^2(3x - x) =$

A. $2x^3$. B. $2x^4$.
C. $3x^3$. D. $3x^4$.

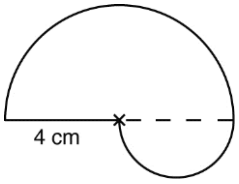
3. Which of the following points represent $-\sqrt{5}$ on the number line below.



A. P B. Q
C. R D. S

4. The following figure is formed by two semi-circles. Find the perimeter of the figure.

A. 6π cm B. $(6\pi + 4)$ cm
C. 8π cm D. $(8\pi + 4)$ cm



5. Which of the following numbers is a rational number?

I. $\pi + \sqrt{7}$

II. $\sqrt{4}$

III. $0.\dot{1}2\dot{5}$

A. I only
B. I and II only
C. II and III only
D. I, II and III

6. If $a = \sqrt{3}$ and $b = \sqrt{5}$, then $\sqrt{45} =$

A. ab.
B. $2ab$.
C. ab^2.
D. a^2b.

End of Section A

Section B Conventional Questions (28 marks)

7. Make w the subject of the formula $z = \frac{wx - uy}{v}$. (3 marks)

8. (a) Factorize $2x^3 + x^2y$.

(b) Hence, factorize $2x^3 + x^2y - 2xy^2 - y^3$.

(4 marks)

9. Simplify the following expressions and rationalize the denominator of the result if necessary.

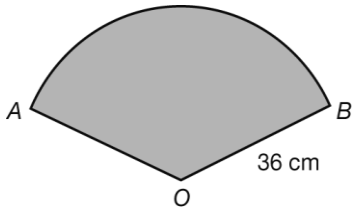
(a) $\sqrt{125}+\sqrt{20}$.

(b) $\sqrt{15}\times\sqrt{35}$.

(c) $\dfrac{5}{\sqrt{14}}-\sqrt{\dfrac{7}{8}}$.

(6 marks)

10. In the figure, the radius of the sector AOB is 36 cm. It is given that $\overset{\frown}{AB} = 26\pi$ cm.



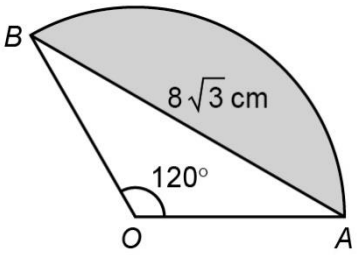
(a) Find $\angle AOB$.

(b) Find the area of the sector AOB in terms of π.

(5 marks)

11. In a summer camp, the ratio of the number of boys to the number of girls is 8 : 3. If 13 boys and 3 girls leave the summer camp, then the number of boys and the number of girls are the same. Find the original number of boys in the summer camp. (4 marks)

12. In the figure, OAB is a sector where $\angle AOB = 120°$. The perimeter of the sector is $\left(\frac{16\pi}{3} + 16\right)$ cm and $AB = 8\sqrt{3}$ cm.



(a) Find the radius of the sector.

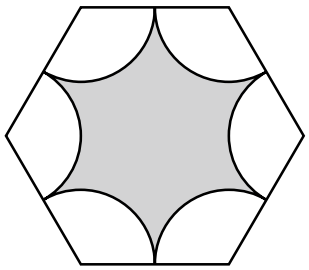
(b) Find the area of the shaded region.

(6 marks)

End of Section B

Section C Bonus Question (4 marks)

13. The following figure is formed by a regular hexagon of side 6 cm and sectors of equal radius.



(a) Find the perimeter of the shaded region.

(b) Find the area of the shaded region.

(4 marks)

End of paper