Half-Yearly Examination 2024/2025

S1 **Mathematics Paper 2** **Time: 45 min**

Name: _____ S1 ____ ( ) Marks: _____/36

Question Paper

INSTRUCTIONS:

1. Write your class, name and class number in the spaces provided on the MC answer sheet.

2. When told to open this book, you should check that all the questions are there. Look for the words "**END OF PAPER**" after the last question.

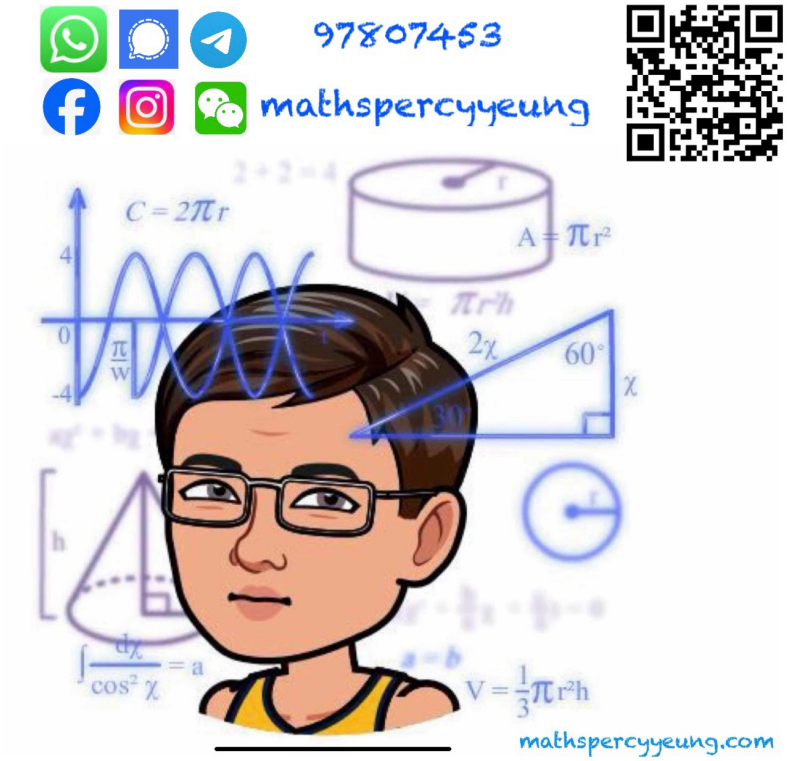
3. All questions carry equal marks.

4. **ANSWER ALL QUESTIONS.** You are advised to use an HB pencil to mark all the answers on the Answer Sheet, so that wrong marks can be completely erased with a clean rubber. You must mark the answers clearly otherwise you will lose marks if the answers cannot be captured.

5. You should mark only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.

6. No marks will be deducted for wrong answers.

7. You are **NOT ALLOWED** to use calculators.



There are 24 questions in this paper.
The diagrams in this paper are not necessarily drawn to scale.
Choose the best answer for each question.

1. The L.C.M. of $2^2 \times 3 \times 7$ and $2 \times 3^2 \times 7^2$ is
   A. $2 \times 3 \times 7$.
   B. $2^2 \times 3 \times 7$.
   C. $2^2 \times 3^2 \times 7^2$.
   D. $2^3 \times 3^3 \times 7^3$.

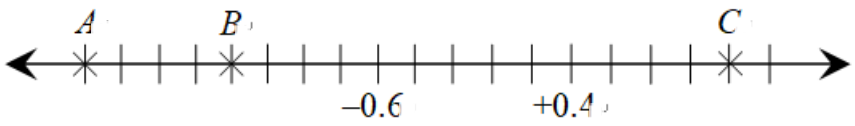
2. ***M*** is an integer divisible by 6 and 8. Which of the following integers must be a factor of ***M***?
   I. 16
   II. 24
   III. 48
   A. I only
   B. II only
   C. I and III only
   D. II and III only

3. How many non- negative integers between $-\ 3.9$ and $+\ 4.9$?
   A. 3
   B. 4
   C. 5
   D. 6

4. If $m > 0 > n$, which of the following must be negative?
   I. $m - n$
   II. $n - m$
   III. $m + n$
   A. I only
   B. II only
   C. I and III only
   D. II and III only

5. Find the result of "*Subtract 12 from 5 and then multiply the result by the product of 6 and 2*".
   A. +56
   B. −56
   C. +84
   D. $-\ 84$

6. Find the value of $A\ -C \times B$.



   A. $-\ 0.52$
   B. $-\ 0.14$
   C. $-\ 3.88$
   D. $+\ 4.32$

7. Which of the following expressions gives a positive result?
   A. $(+23)\,(-15) \times [(-5) + (+5)]$
   B. $[(-\ 25) + (-\ 25)][(+\ 2)\ +\ (-\ 5)]$
   C. $(-23) \times (-25) \div (-2325)$
   D. $(+1998)\,(+5-100)$

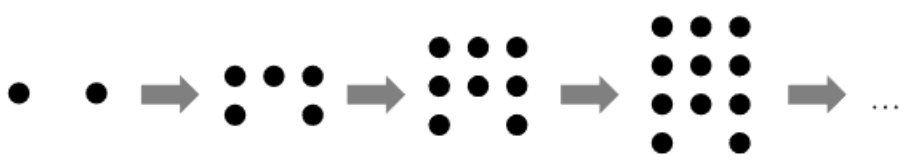
8. Mr. Lam has x cakes and 8 of them are chocolate cakes. Later, Mr. Lam buys y more chocolate cakes. What fraction of the cakes are chocolate cakes now?
   A. $\frac{8+y}{x}$
   B. $\frac{y}{x+8}$
   C. $\frac{8+y}{x+y}$
   D. $\frac{8}{x+y}$

9. The general term of a sequence is $a_n = 6(n - 2)$. Which of the following are terms of the sequence?
   I. $-\ 6$
   II. 0
   III. -18
   A. I and II only
   B. I and III only
   C. II and III only
   D. I, II and III

10. Simplify $2a^2 \times (a + a) \times (a + a + a)$.
   A. $12a^4$
   B. $12a^7$
   C. $2a^4$
   D. $4a^7$

11. Which of the following statements is/are true?
   I. The sum of two prime numbers must be a composite number.
   II. The product of two prime numbers must be a composite number.
   A. I only
   B. II only
   C. I and II
   D. None of the above

12. In the figure, the 1st pattern consists of 2 dots. For any positive integer n, the $(n + 1)$th pattern is formed by adding 3 dots to the nth pattern. Find the number of dots in the 8th pattern.



A.21
B.23
C.26
D.29

13. Which of the following statements about the polynomial $-x^2 + 3xy^2 + \frac{2x^2}{3} - 3$ is true?
    A. The constant term is 3.
    B. $+3xy^2$ and $+\frac{2x^2}{3}$ are like terms.
    C. The degree of the polynomial is 7.
    D. $-x^2$ *and* $+\frac{2x^2}{3}$ are like terms.

14. Which of the following equations has $x = -1$ as its solution?
    A. $-2x + 3 = -x + 3$
    B. $-3x = -x + 4$
    C. $2x - 2 = x - 1$
    D. $2x - 1 = 4x + 1$

15. The coefficient of x^4 in $3x^4 - (4x^2 + 1)(2x^2 - 2)$ after expansion and simplification is
    A. -5.
    B. 3.
    C. 7.
    D. 13.

16. Consider the formula $A = -ab^2 + 5ab - c^2$. If $a = 1$, $b = -1$ and $c = -2$, find *A*.
    A. -10
    B. -2
    C. 0
    D.2

17. If $3.6458 < x < 3.6469$, which of the following is true?
    A.$x = 3.64$ (correct to 2 decimal places)
    B.$x = 3.65$ (correct to 3 significant figures)
    C.$x = 3.646$ (correct to 3 decimal places)
    D.$x = 3.647$ (correct to 4 significant figures)

18. The sum of two numbers is 134 and the difference of the two numbers is 28. Find the larger number.
    A. 53
    B. 56
    C. 76
    D. 81

19. The length of a rectangle is 6 cm longer than its width. If the perimeter of the rectangle is

36 cm, find the area of the rectangle.

A. 36 cm^2
B. 54 cm^2
C. 72 cm^2
D. 135 cm^2

20. By rounding off the number 71448, which of the following approximation values **CANNOT** be obtained?

A. 70000
B. 71000
C. 71400
D. 71440

21. Which of the following are polynomials?

I. $\frac{y}{5} - 1$
II. $\frac{5}{y} - 1$
III. $y^5 - 1$

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

22. There are some \$2 coins and \$5 coins in a box. The number of \$2 coins is 3 less than 5 times that of \$5 coins. If the total value of the coins in the box is \$189, find the number of \$2 coins.

A. 13
B. 19
C. 35
D. 62

23. Expand $(2x - y)^2$.

A. $4x^2 - 4xy + y^2$
B. $4x^2 - 4xy - y^2$
C. $4x^2 + y^2$
D. $4x^2 - y^2$

24. Simplify $\frac{25^{3n+1}}{5^n}$.

A. 5^{4n+1}
B. 5^{4n-2}
C. 5^{5n+2}
D. 5^{5n+1}

END OF PAPER