

2024-2025 中三  
上學期統測一  
數學

新生命教育協會呂郭碧鳳中學

2024-2025

中三級上學期統測一

數學

試題答題簿

本試卷中文試題必須用中文作答

英文試題必須用英文作答

二零二四年十月二十八日

一小時完卷

(上午八時十五分至上午九時十五分)

考生須知

- (一) 宣布開考後，考生須首先在第 1 頁的適當位置填寫學生姓名、班別及學號。
- (二) 本試卷各題均須作答，答案須寫在本試題答題簿中預留空位內。
- (三) 除特別指明外，須詳細列出所有算式。數值答案須用真確值，或準確至三位有效數字的近似值表示。
- (四) 本試卷的附圖不一定依比例繪成。

姓名	
班別	
學號	

部 份	分 數
甲 (1-3)	
甲 (4-12)	
甲部	/50
乙部	/20
全卷	/70

**甲部 (50 分)**

1. 一杯橙汁的體積為 250 mL，準確至最接近的 5 mL。求該量度值的百分誤差。 (3 分)

[illegible]

- ## 2. 因式分解

(a)  $100 - a^2$  ,

(b)  $10b + ab + 100 - a^2$  .

(3 分)

[illegible]

3. (a) 令  $t$  成為公式  $v = \frac{2u}{1+t}$  的主項。

- (b) 若  $u=3$  及  $v=-1$ ，求  $t$  的值。

(4 分)

[illegible]

4. 化簡以下各數式，並以正指數表示答案。

(a)  $(x^0y^3)^2 \times (2x^4y^{-5})^3$

(b)  $(ab^{-2}) \div \left(\frac{b}{a^0}\right)^{-1}$

(6 分)

[illegible]

## 5. 因式分解

(a)  $m^2 + 5m + 4$  ,

(b)  $12q^2 - 2pq - 4p^2$  .

(3 分)

[illegible]





10. Mr. Chan earned \$26 000 last month. It is known that the amount earned by Mr. Chan this month increased by 5% from last month, but the amount earned next month will decrease by 20% from this month.
- (a) Find the amount earned by Mr. Chan next month.
- (b) Find the overall percentage change in the amount earned by Mr. Chan from last month to next month.

(4 marks)

[illegible]

11. 三角形的邊長是  $9\text{ cm}$ ， $(6+x)\text{ cm}$  和  $(x-2)\text{ cm}$ 。若三角形的周界不大於  $40\text{ cm}$ ，求  $x$  的最大可能整數。

(4 分)

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12. Consider the salaries tax rates as follows.

Net chargeable income	Tax rates
On the first \$50 000	2%
On the next \$50 000	6%
On the next \$50 000	10%
On the next \$50 000	14%
Remainder	17%

The annual income of Anson is \$750 000. If he has an allowance of \$138 000, find

- (a) his net chargeable income,
- (b) his salaries tax payable.

(5 marks)

1. The first part of the document is a list of 100 items, each consisting of a number followed by a name. The names are: 1. John, 2. Mary, 3. Peter, 4. Paul, 5. David, 6. Michael, 7. James, 8. Robert, 9. William, 10. Richard, 11. Joseph, 12. Thomas, 13. Charles, 14. Christopher, 15. Daniel, 16. Matthew, 17. Andrew, 18. John, 19. Paul, 20. David, 21. Michael, 22. James, 23. Robert, 24. William, 25. Richard, 26. Joseph, 27. Thomas, 28. Charles, 29. Christopher, 30. Daniel, 31. Matthew, 32. Andrew, 33. John, 34. Paul, 35. David, 36. Michael, 37. James, 38. Robert, 39. William, 40. Richard, 41. Joseph, 42. Thomas, 43. Charles, 44. Christopher, 45. Daniel, 46. Matthew, 47. Andrew, 48. John, 49. Paul, 50. David, 51. Michael, 52. James, 53. Robert, 54. William, 55. Richard, 56. Joseph, 57. Thomas, 58. Charles, 59. Christopher, 60. Daniel, 61. Matthew, 62. Andrew, 63. John, 64. Paul, 65. David, 66. Michael, 67. James, 68. Robert, 69. William, 70. Richard, 71. Joseph, 72. Thomas, 73. Charles, 74. Christopher, 75. Daniel, 76. Matthew, 77. Andrew, 78. John, 79. Paul, 80. David, 81. Michael, 82. James, 83. Robert, 84. William, 85. Richard, 86. Joseph, 87. Thomas, 88. Charles, 89. Christopher, 90. Daniel, 91. Matthew, 92. Andrew, 93. John, 94. Paul, 95. David, 96. Michael, 97. James, 98. Robert, 99. William, 100. Richard.

**Section B (20 marks)**

13. Johnny deposited \$ $P$  in Bank A on simple interest at the beginning of 2010. The interest rate is 3% p.a. for the first year and 4% p.a. for subsequent years. He obtained a total interest of \$880 at the beginning of 2013.

- (a) Find the value of  $P$ . (3 marks)
- (b) At the beginning of which year did Johnny obtain a total interest of \$2 160? (4 marks)
- (c) If Johnny deposits \$ $P$  in Bank B at an interest rate of 3% p.a., compounded half-yearly at the beginning of 2010, find the total interest he obtained at the beginning of 2017. (Give your answer correct to the nearest dollar.) (3 marks)





14. (a) (i) 因式分解  $49m^2 - 144n^2$ 。

(ii) 因式分解  $14m^2 + 46mn - 120n^2$ 。

(3 分)

(b) 由此， 或其他方法， 因式分解

$$14(2x-2y)^2 + 46(2x-2y)(x-2y) - 120(x-2y)^2 \text{。} \quad (3 \text{ 分})$$

(c) 由此，或其他方法，化簡

$$\frac{12x+60y}{14(2x-2y)^2+46(2x-2y)(x-2y)-120(x-2y)^2} \div \frac{3}{49x^2-144y^2} \circ \quad (4 \text{ 分})$$

[illegible]

試 卷 完