



MathConcept

2024

P3

Question Booklet

問題簿

Time: 50 Minutes
Calculators are NOT permitted.

Instructions:

- DO NOT OPEN THIS QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.**
- If the information printed on your answer sheet is not correct, please inform the invigilator immediately.**
- Please use a pencil and write your answers neatly ONLY on the answer sheet provided. DO NOT write or draw in the circle next to each answer box. No mark will be given if you failed to follow this instruction.**
- Unless otherwise specified, all answers must be in exact value and in its simplest form. Writing the units for the answers is NOT necessary.**
- Rough-work sheets provided will be collected at the end of the contest but they will not be marked.**
- Diagrams in this question booklet are not necessarily drawn to scale.**

限時：50 分鐘
不允許使用計算機。

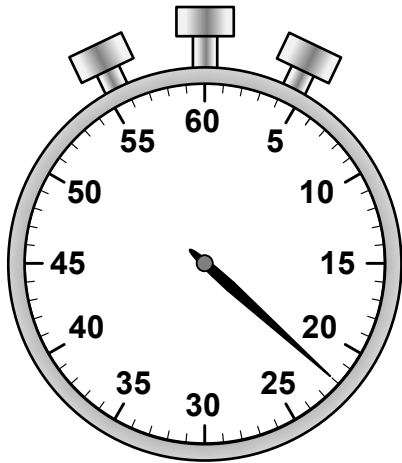
比賽須知：

- 未宣布開始前，切勿翻閱此問題簿。**
- 請核對答題紙上列出的資料是否與你相符。如有問題，請舉手。**
- 所有答案必須寫在答題紙內，並須用鉛筆作答。請勿填寫或畫花題號後方的圓圈，否則該題答案將會作廢。**
- 除非題目特別表明，所有答案均不需填寫單位，但必須以準確數值及最簡方式表示。**
- 比賽完結時監考員會收回桌上的草稿紙，但草稿紙上所書寫的任何文字或圖表將不獲評閱。**
- 此問題簿的附圖不一定依比例繪成。**

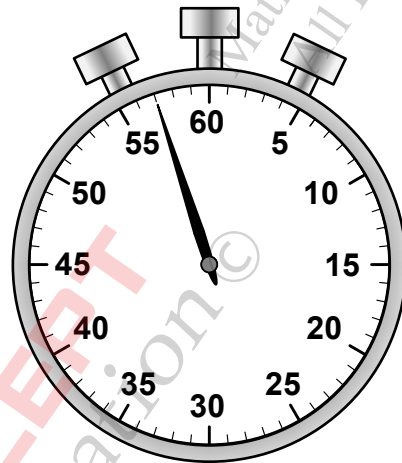
- 1) $153 - 67 = ?$ [1%]
- 2) $41 + 79 = ?$ [1%]
- 3) $503 - 279 = ?$ [1%]
- 4) $537 + 473 = ?$ [1%]
- 5) $7 \times 56 = ?$ [1%]
- 6) $648 \div 6 = ?$ [1%]
- 7) $903 \div 7 \div 3 = ?$ [1%]
- 8) $7 \times 27 \times 5 = ?$ [1%]
- 9) $306 - 6 \times 13 = ?$ [1%]
- 10) $288 - 389 + 186 = ?$ [1%]
- 11) $89 - 17 - 17 - 17 - 17 + 17 - 17 = ?$ [1%]
- 12) $26 - 76 - 26 \times 8 + 52 \times 5 = ?$ [1%]
- 13) $(58 + 72) \times 89 + (58 + 72) \times 62 - 51 \times (58 + 72) = ?$ [1%]
- 14) $5 \times 125 \times 4 \times 6 \times 2 \times 25 = ?$ [1%]
- 15) $32 + 30 + 28 + \dots + 4 = 11 + ?$ [1%]

- 16) Elly and Bob finished a sprint in under 1 minute. The stopwatches below show the times they needed to finish the sprint. By how many seconds is Bob slower than Elly? [2%]

小思和嘉朗以少於一分鐘時間完成短跑比賽。以下秒錶記錄了他們所花的時間。嘉朗比小思慢多少秒？



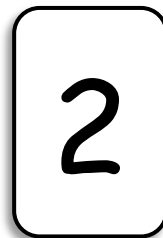
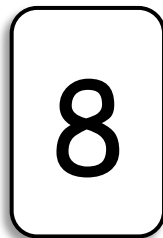
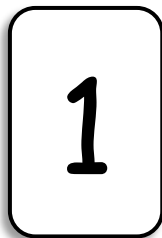
Elly
小思





Bob
嘉朗

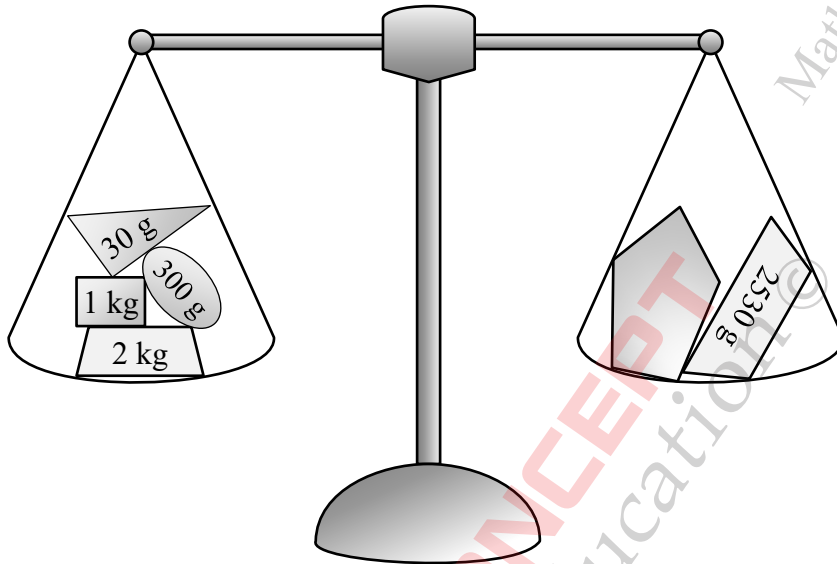
- 17) The smallest 4-digit even number that can be formed with the number cards below is ____?____. [2.1%]

用以下數字卡可組成的最小四位偶數是 ____?____。



- 18) The weight of  is ___?___ g. [2.2%]

 的重量是 ___?___ 克。



- 19) For the same notepad, shop *A* sells it for \$57 more than shop *B*. [2.3%]
Shop *C* sells it for \$28 more than shop *A*. What is the difference between the prices of the notepad between shop *B* and shop *C* in dollars?

現有一款筆記本，店 *A* 比店 *B* 賣貴 57 元。店 *C* 比店 *A* 賣貴 28 元。該款筆記本在店 *B* 與店 *C* 的差價是多少元？

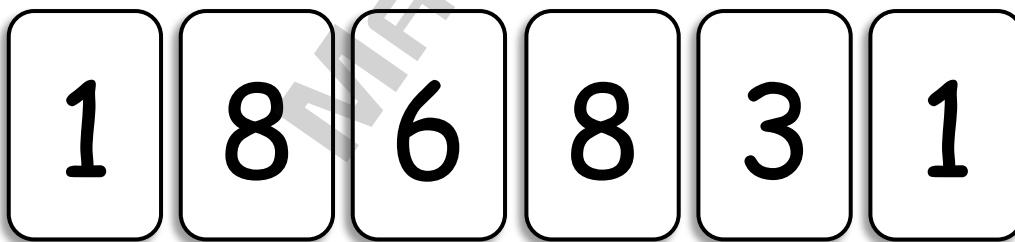
- 20) Jacob wants to share 97 chocolate bars with 6 friends evenly. He realises that 97 bars are too many to share evenly, so he gives the extras to his sister. At least how many chocolate bars does Jacob's sister receive? [2.4%]

雅銘想與 6 個朋友平分 97 條巧克力棒。他發現 97 條太多了，不能平分，所以他把多出來的給了他的妹妹。雅銘的妹妹最少收到多少條巧克力棒？



-
- 21) Use the following number cards to form a 4-digit number with the largest difference from 5000. [2.5%]

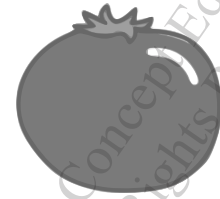
用以下數字卡組成一個與 5000 相差最大的四位數。






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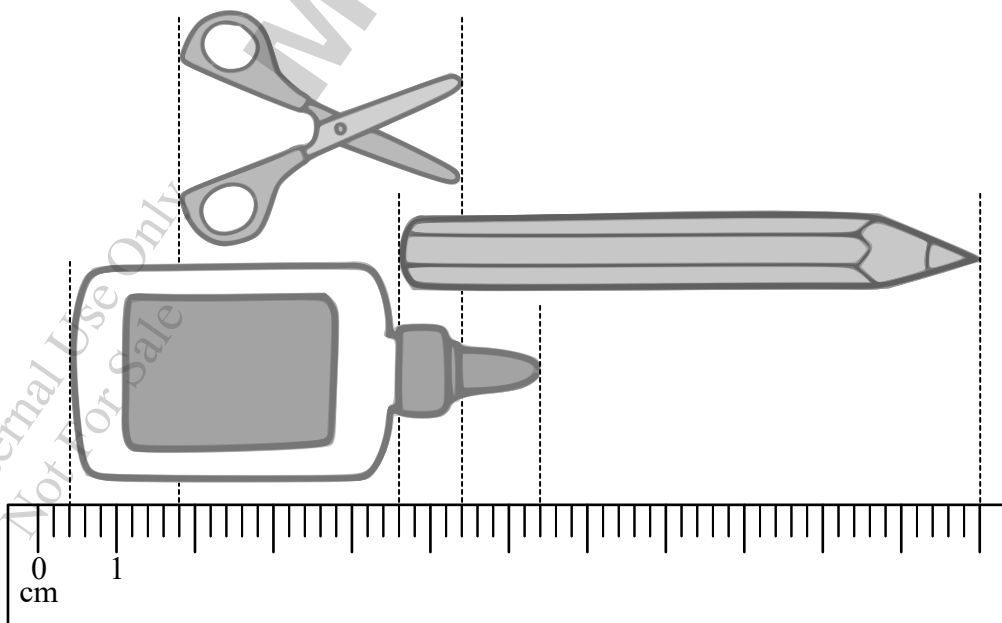
- 22) A bag can hold at most 13 tomatoes. [2.6%]
At least how many bags are needed to hold 103 tomatoes?

一個袋最多可裝 13 個蕃茄。
要裝下 103 個蕃茄最少需要多少個袋？



- 23) The length of  is longer than the length difference [2.7%]
between  and  by ___?___ cm.

 的長度比  和  的長度之差長 ___?___ cm。



- 24) The number of students in school B is 491. The number of students in school A is twice of that in school B . The number of students in school C is 239 fewer than that in school B . [2.8%]

What is the total number of students of these three schools?

乙學校的學生人數為 491 人。甲學校的學生人數為乙學校的兩倍。丙學校的學生人數比乙學校少 239。
三間學校總共有學生多少人？

- 25) $\underline{\quad ? \quad}$ mm = 31 m + 301 cm + 13 mm [2.9%]

$\underline{\quad ? \quad}$ 毫米 = 31 米 + 301 厘米 + 13 毫米

- 26) $768 \div 6 \div 8 = \underline{\quad ? \quad} \div 3 \div 2$ [3%]

- 27) Bob arrived at the bus stop to wait for a bus 19 minutes earlier than its scheduled time. However, due to a traffic jam, the bus arrived 31 minutes later than its scheduled time. Bob decided to take a taxi 14 minutes before the bus arrived, and he reached his destination in 1 hour and 7 minutes, that is, at 01 : 08. When did Bob start waiting at the bus stop? (Answer in 24-hour time.) [3.1%]

俊傑在比巴士的預定到站時間早 19 分鐘到巴士站等候巴士。可是，由於交通擠塞，巴士比預定時間遲了 31 分鐘到站。而俊傑已在該巴士到站前的 14 分鐘乘坐的士離開，並在 1 小時 7 分鐘後，即 01 : 08，到達目的地。俊傑在巴士站開始等待的時間是？（以 24 小時報時制作答。）

- 28) \mathcal{A} is a 3-digit number and \mathcal{B} is a 1-digit number. If the hundreds place of \mathcal{A} , the tens place of \mathcal{A} , the units places of \mathcal{A} and \mathcal{B} are different numbers, what is the largest possible product of \mathcal{A} and \mathcal{B} ? [3.2%]

現有一個三位數 \mathcal{A} 和一個一位數 \mathcal{B} 。如果 \mathcal{A} 的百位、 \mathcal{A} 的十位、 \mathcal{A} 的個位和 \mathcal{B} 的數字都不同， \mathcal{A} 與 \mathcal{B} 的積最大是多少？

-
- 29) Tom had a busy Monday. He spent half of the whole day working at his job. He then spent half of the remaining time on community service, during which a third of the time he played games with children and tidied the library. After the community service, he spent a quarter of the time left to attend an online class. For how long in minutes was he in the online class? [3.3%]

偉健上星期一非常忙碌。他當天半天都在上班。之後他花了當天剩下時間的一半參加社區服務，當中他有三分之一的時間都在和區內的兒童玩遊戲和整理圖書館。社區服務結束後，他用剩下時間的四分之一上網課。他上網課上了多少分鐘？

- 30) There are over 300 students in a hall. Trying to divide them into 6 groups evenly results in two extra students. However, they can be divided into 7 groups evenly. At least how many students are there in the hall? [3.4%]

禮堂內有多於 300 個學生。嘗試把學生平分成 6 隊時，會多出兩個學生。然而，學生們可以被平分成 7 隊。禮堂內最少有學生多少人？

- 31) If p , q and r are whole numbers that are greater than 0, what is the units place of the value of the following expression? [4%]

$$\underbrace{7 \times 7 \times 7 \times \dots \times 7}_{p \text{ '7's}} \times \underbrace{5 \times 5 \times 5 \times \dots \times 5}_{q \text{ '5's}} \times \underbrace{8 \times 8 \times 8 \times \dots \times 8}_{r \text{ '8's}}$$

如果 p 、 q 和 r 都是大於 0 的整數，下列算式的值的個位數是多少？

$$\underbrace{7 \times 7 \times 7 \times \dots \times 7}_{p \text{ 個 } 7} \times \underbrace{5 \times 5 \times 5 \times \dots \times 5}_{q \text{ 個 } 5} \times \underbrace{8 \times 8 \times 8 \times \dots \times 8}_{r \text{ 個 } 8}$$

- 32) There are 1320 students in a school, 469 students can play the piano, 813 students can swim, and 97 students can neither play the piano nor swim. How many students are there in the school who can either play the piano or swim in total? [4.1%]

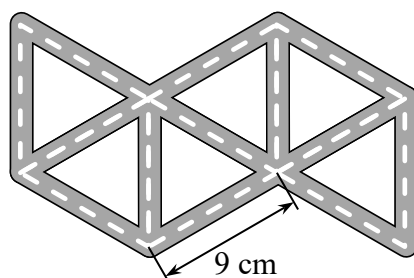
一間學校有 1320 名學生，469 名學生懂得彈琴，813 名學生懂得游泳，有 97 名學生彈琴和游泳都不懂。該學校共有多少人只懂彈琴或只懂游泳？

- 33) At most how many squares of side length 7 cm can be cut out from a rectangle that is 87 cm long and 53 cm wide? [4.2%]

一個長 87 厘米，闊 53 厘米的長方形，最多可以分割成多少個邊長 7 厘米的正方形？

- 34) Steve combined some straight short toy tracks into a larger track made up of 6 equilateral triangles as shown in the figure. Each toy track is 9 cm long. If a remote control car needs to go through each short track at least once, what is the least distance it needs to travel in mm? [4.3%]

如下圖所示，小蒂以數段 9 厘米長的直線賽道拼出一個由 6 個等邊三角形組成的大賽道。如果一輛遙控車需要走過整個賽道的每一段路最少一次，它需要行駛的最短距離是多少毫米？

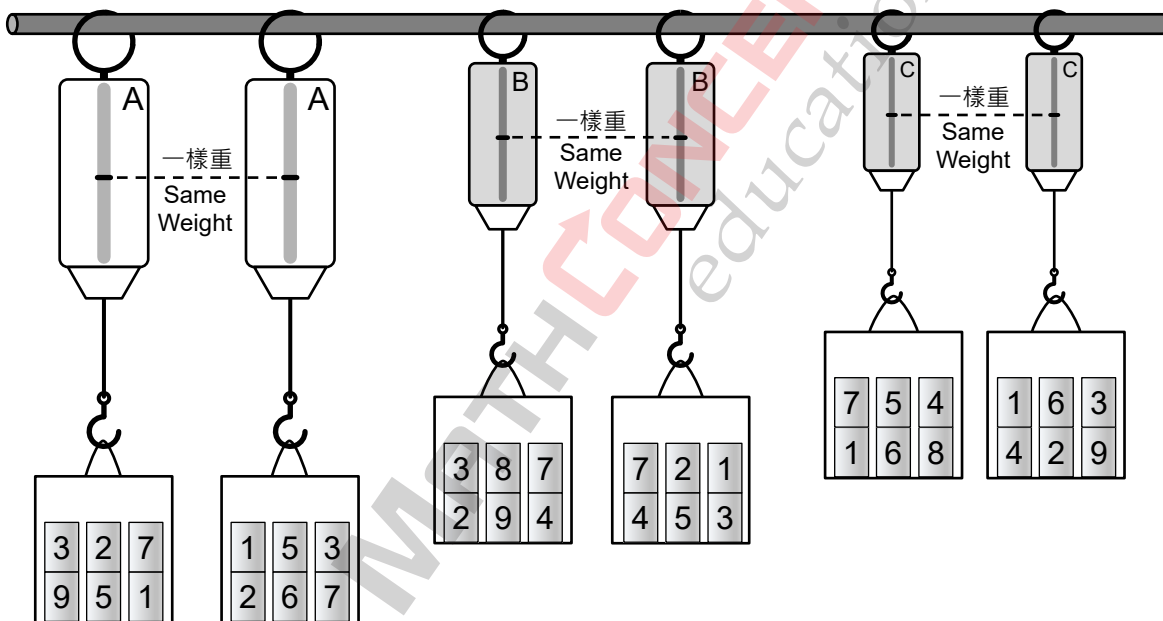


- 35) There are nine types of weights numbered from 1 to 9. One of them [4.4%] weighs differently from the other eight. A student compares the weights in different combinations using three different pairs of spring scales, A, B, and C.

Observe the figure below carefully, the weight that weighs differently from the others is number ? .

現有 1 號至 9 號，共 9 種砝碼，其中一種砝碼的重量與其他 8 種不同。一名學生以 A、B 和 C 三對不同的彈簧秤比較不同組合的砝碼。



仔細觀察下圖，重量與其他 8 種不同的砝碼是 ? 號。

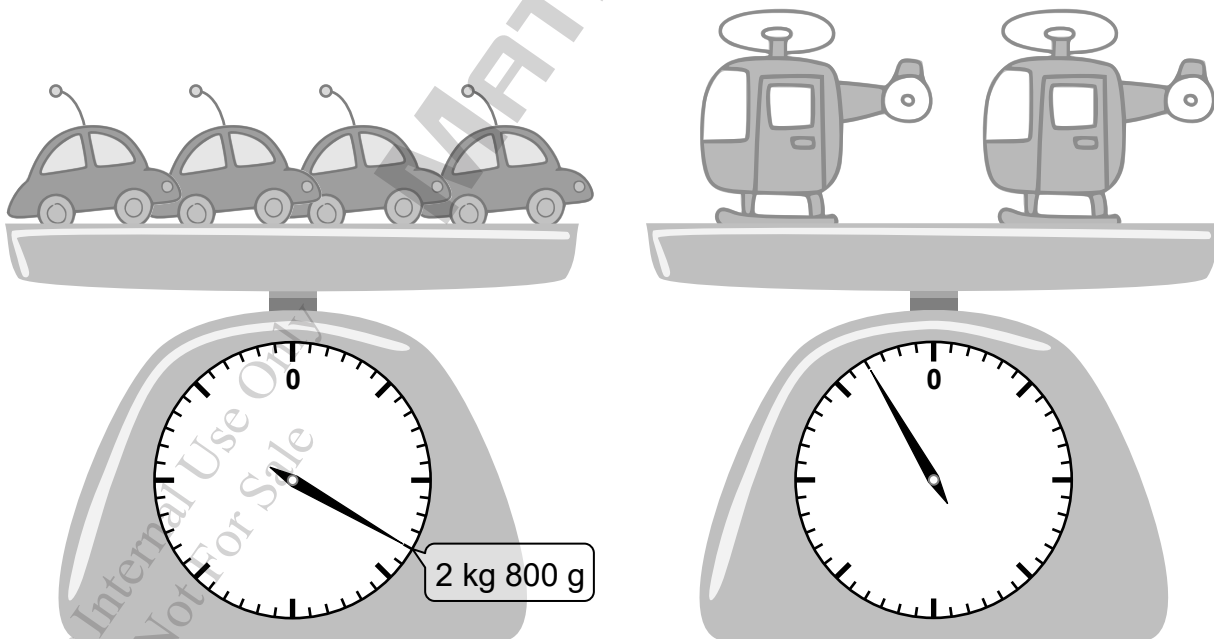


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- 36) Anna, Bell and Calvin are combining their money to buy a sofa. [4.5%]
 Anna contributes three times more than Bell. Calvin contributes \$328 less than Bell. If the sofa's price is \$4202, how much, in dollars, does Bell contribute?

安娜、寶兒和凱文合資買一張梳化。安娜付出的比寶兒多 3 倍。凱文付出的比寶兒少 328 元。如果梳化的價錢為 4202 元，寶兒付出了多少元？

- 37) Observe the figure below carefully, a  weighs ___?___ g. [4.6%]
 細心觀察下圖，一架  重 ___?___ g。



- 38) A new teacher wants to find out who can be trusted among 3 students, Ada, Bella and Charlotte. The teacher asks them whether they are truthful. Ada says she is a truthful person but the other two always lie. Bella is too shy to answer, so she tells her answer to Charlotte. Charlotte reports that Bella said she is a truthful person. Who is truthful? [4.7%]

一名新老師想在小愛、小貝和小莎三名學生中，找出誠實的學生。老師問他們是否誠實的人。小愛說她是一個誠實的人，另外二人總是在說謊。小貝很害羞，不敢回答，所以把答案告訴小莎。小莎說小貝回答說她自己是一個誠實的人。誰是誠實的學生？

- 39) Student A and student B are playing a game. The winner of the game is the one who wins 4 more rounds than the opponent. How many win-loss combinations are there for student A to win the game at the 12th round with 8 wins? [4.8%]

學生 A 和學生 B 在玩一個遊戲。最先比對方多勝 4 個回合的人為遊戲的勝出者。總共有多少個勝敗組合讓學生 A 可以在第 12 回合以 8 勝的成績，成為遊戲的勝出者？

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- 40) A teacher picked two different numbers from the numbers 1 – 9. [4.9%]
The teacher told student *A* the product of the two numbers, then told student *B* the sum of the two numbers, and told student *C* the difference of the two numbers. These three students are trying to guess what the two numbers are. Below is their conversation.

Student *A* said ‘I don’t know what the numbers are.’
Student *B* said ‘I don’t know neither.’
Student *C* said ‘I’m not sure. How about you *A*?’
Student *A* said ‘Oh! I know what the numbers are now. What about you two?’
Student *B* said ‘I still can’t tell.’
Student *C* said ‘I know now!’

What can the numbers that the teacher picked be?

(For example, if the teacher picked 1 and 2, write (1, 2).)

(If there are multiple pairs of number, you must correctly answer all the pairs correctly.)

老師從 1 至 9 中選了兩個不同的數字，並先告訴學生 *A* 兩個數字的積，再告訴學生 *B* 兩個數字的和，最後告訴學生 *C* 兩個數字的差。三名學生嘗試猜該兩個數字是什麼。以下是他們的對話。

學生 *A* 說：「我不知道那兩個數字是什麼。」
學生 *B* 說：「我也不知道。」
學生 *C* 說：「我不能確定。*A* 你知道嗎？」
學生 *A* 說：「我知道那兩個數字是什麼了。你們呢？」
學生 *B* 說：「我還是不知道。」
學生 *C* 說：「我也知道了！」

老師選了的數字可能是什麼？

(例如，如果老師選了 1 和 2，請寫下(1, 2)。

(如果答案多於一組數字，必須答對所有組合。)

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REG NO			P3
NAME			
GRADE			
SEAT			

ANSWER SHEET

IDCHECK

ABSENT

ANSWER		ANSWER		ANSWER		ANSWER	
1	86	11	21	21	1136	31	0
2	120	12	2	22	8	32	1164
3	224	13	13 000	23	5	33	84
4	1010	14	750 000	24	1725	34	1350
5	392	15	259	25	34 023	35	4
6	108	16	35	26	96	36	755
7	43	17	1248	27	23:25 (this only)	37	3850
8	945	18	800	28	7884	38	Charlotte/ 小莎
9	228	19	85	29	90	39	164
10	85	20	6	30	308	40	(2, 9), (3, 8)



(A B C D E F)

Q40 answer must include both combinations.