



PERFECT  
SOLUTION  
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GROUP

# JC MATHEMATICS (H2) STUDY TIPS

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**UNLOCK THE ARROW METHOD:  
YOUR FOOLPROOF PLAYBOOK  
FOR FLAWLESS SEPARATION IN  
ARRANGEMENTS**

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JC\_H2Maths\_035



## • Arrow Method

### Example 5

Find the number of arrangements of all ten letters of the word STATISTICS in which the three letters 'S' are separated.

$$\begin{array}{l}
 T: 3 \\
 I: 2 \\
 A: 1 \\
 C: 1
 \end{array}
 \Rightarrow 7$$

$$\uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow = 8 \uparrow$$

$$S \quad S \quad S$$

$$\frac{7!}{3! \times 2!} \times {}^8C_3 \times \cancel{3!} = 23520$$

$\uparrow$  3's are identical

### Example 6

A group of 4 boys and 3 girls are sitting in a row. Find the number of arrangements such that the 3 girls are separated.

Human beings are unique.

↓

$$\begin{array}{c}
 B_1 \quad B_2 \quad B_3 \quad B_4 \\
 \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \\
 G_1 \quad G_2 \quad G_3
 \end{array}
 \Rightarrow \text{Answer} = 4! \times {}^5C_3 \times 3!$$

$$= 1440$$

### Quick Practice

A password consists of five letters "HAPPY" and four numbers "2388". Given that each of the four numbers must be separated by the letter(s), find the number of such arrangements.

$$H \quad A \quad P \quad P \quad Y \Rightarrow 5$$

$$\uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow \quad \uparrow$$

$$2 \quad 3 \quad 8 \quad 8 \Rightarrow 4$$

$$\Rightarrow \text{Answer} = \frac{5!}{2!} \times {}^6C_4 \times \frac{4!}{2!}$$

$$= 10800$$



## Explanation

To finish strong, simply choose from these arrowed slots to drop in your restricted items. Because you limit yourself to a maximum of just one restricted item per arrow, this brilliant technique completely guarantees that your target items stay flawlessly separated every single time!

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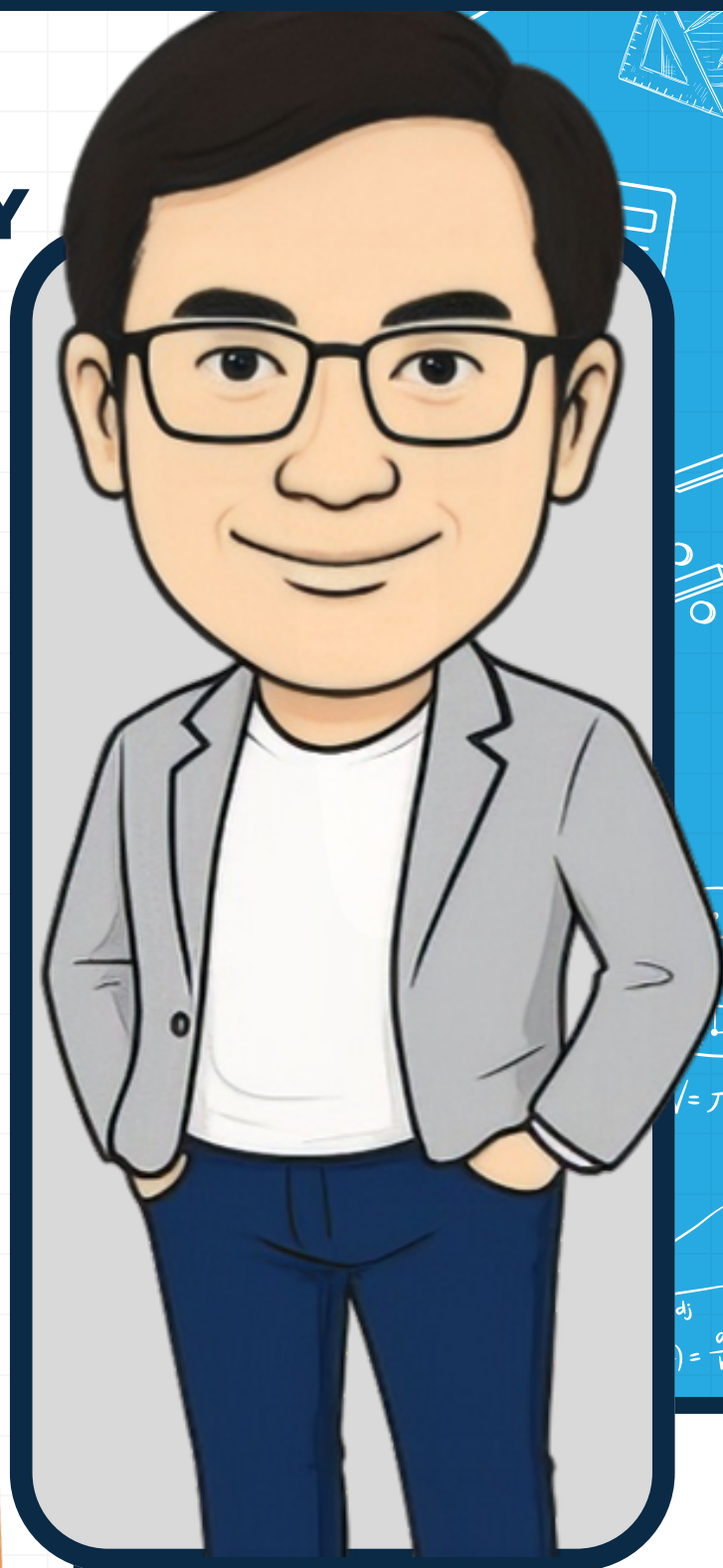
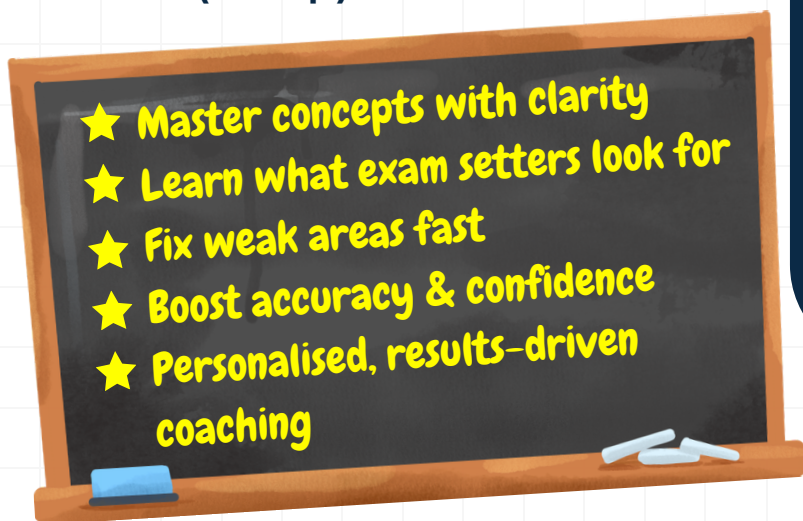
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## MATHS TUITION BY MR JACKIE LEE

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