SAINT LOUIS SCHOOL
Seminar for S3 Parents & Students – S4 Streaming Process
Introduction of the Mathematics Subjects

Presented by Steven So
Introduction of the “Maths” subjects

- Background information
- What is “Calculus”? 
- What is “Statistics”? 
- What is “Algebra”? 
- More information
Background information

- S1 – S3
  - we study a single subject called “Mathematics”
- S4 – S6
  - Compulsory part
    - Maths
      - Extended modules (optional)
      - Module 1 (M1)
        - Calculus & Statistics
      - Module 2 (M2)
        - Algebra & Calculus
Background information

- **Module 1 (Calculus & Statistics)**
  - Consists of the content of CE Additional Mathematics
  - Similar to AS Applied Mathematics and AS Mathematics & Statistics

- **Module 2 (Algebra & Calculus)**
  - Consists of the content of CE Additional Mathematics
  - Similar to AL Pure Mathematics
What is “Calculus”? 

Calculus (微積分) 

Differentiation (微分) 

Integration (積分)
What is “Calculus”?

**Differentiation**

Consider the following questions.

**S3 Level**

If the coordinates of $W$ and $Y$ are $(c + 3, 2 - c)$ and $(-3, -4)$ respectively, and the inclination of $WY$ is $45^\circ$, find the value of $c$.

**S4 Level – S5 Level**

It is given a curve $C$: $y = \frac{2}{3} x^3 - \frac{1}{2} x^2 + 9$. Find the points on $C$ such that the slopes of the tangents to $C$ at these points are 1.
What is “Calculus”?

- **Integration**

  Consider the following question.

  S1 Level
What is “Calculus”? 

Consider the following question.

The curve $y = x^3 - x^2 - 2x$ cuts the $x$-axis at the origin and the points $(a, 0)$ and $(b, 0)$, as shown in Figure 1.

![Graph of the curve $y = x^3 - x^2 - 2x$](image)

Figure 1

a. Find the values of $a$ and $b$.
b. Find the total area of the shaded parts.
What is “Statistics”?

- Students not only study “statistics” [~10%], but also “probability (概率)” [~90%];
- Consider the following questions.

**S3 Level**

A bag consists of 1 red ball, a blue ball and a yellow ball. Find the probability of getting a yellow ball from the bag.
What is “Statistics”?

In a deck of 52 cards, there are 13 kinds: Ace (A), King (K), Queen (Q), Jack (J) and values from 2 to 10. Each of such kinds has 4 suits: Spade (♠), Heart (♥), Club (♦) and Diamond (♦). Define Full House as a set of five cards containing three of a kind and a pair of another kind. A King Full House is a Full House with three Kings. Figure 2 shows an example of a King Full House.

Jerry draws five cards randomly from the deck without replacement.

What is the probability that Jerry will get a King Full House? Give your answer correct to 3 significant figures.
What is “Algebra”?

S3 Level

*Given that* \( y \) *is an acute angle*, solve \( \sin y = 0.5 \).

S4 Level

Find the *general solution* of the trigonometric equation \( \sin y = 0.5 \).
What is “Algebra”? 

S2 Level

(a) Factorize \( k^3 - 8 \).
(b) Hence factorize \( k^3 + k - 10 \).

S4 Level

Factorize \( a^{24} - b^{24} \).
More information

● Module 1:
  ○ Useful for admission to study Economics, Finance, BBA and Science subjects at universities

● Module 2:
  ○ Useful for admission to study Engineering, Architecture and Science subjects (like Physics) at universities
Only students of S4C and S4D can choose either M1 or M2.

Maths lessons of S4C and S4D will take place at the same time.

Teachers responsible for teaching M1/M2 will also be the teachers of the Compulsory Part.

Topics of M1/M2 will start teaching in S4.

For S4 M1/M2 groups, one more lesson (i.e. lesson 7) will be held every Wednesday from 3:30 p.m. to 4:25 p.m.
- The End -