SAINT LOUIS SCHOOL

Seminar for S3 Parents & Students – S4 Streaming Process

Introduction of the Mathematics Subjects

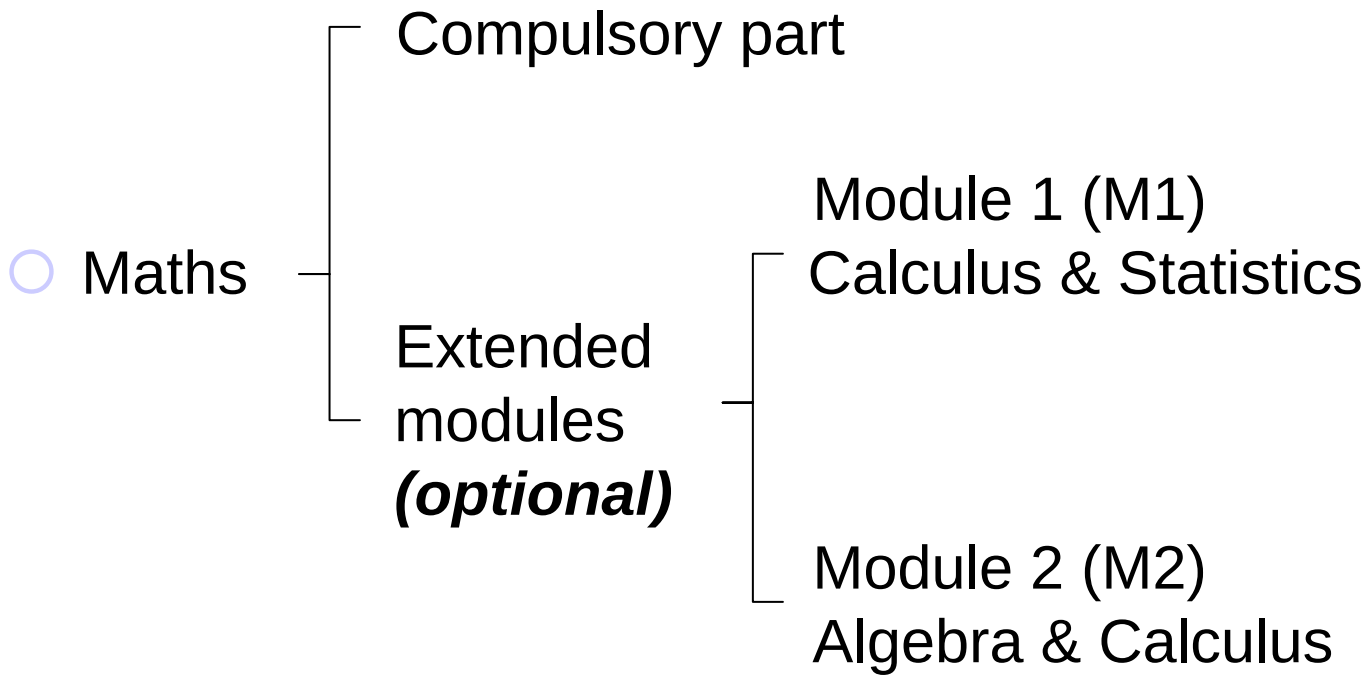
Presented by Steven So

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



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 $45°$, 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 .

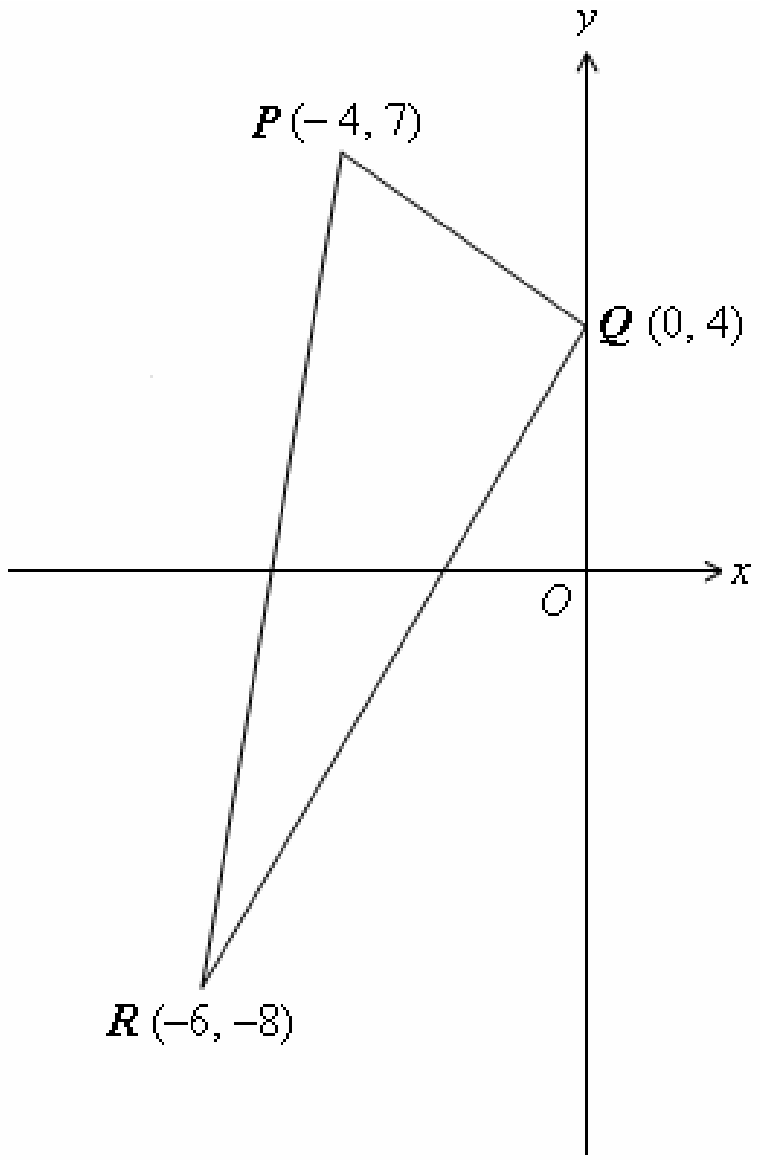
What is “Calculus”?

- **Integration**

  Consider the following question.

S1 Level

Find the area of ΔPQR.



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.

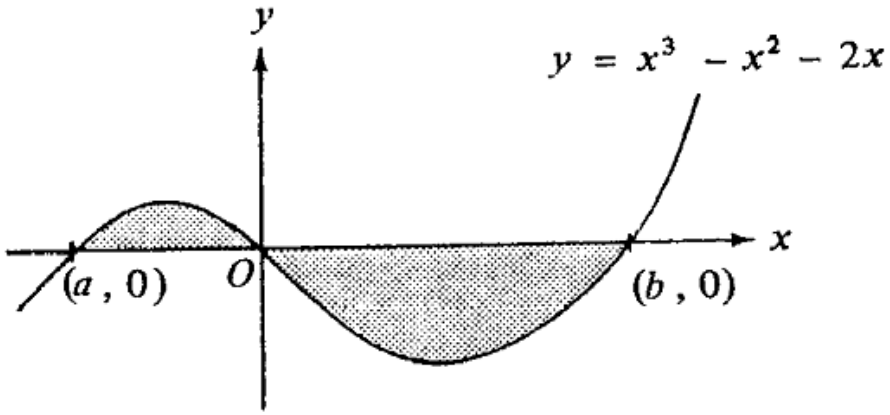


Figure 1

a. Find the values of a and b.
b. Find the total area of the shaded parts.

S4 Level – S5 Level

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”?

S5 Level

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S6 Level

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**.

Figure 2

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

More information

- 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 -