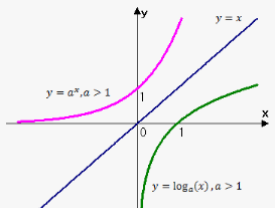
Week 2

Term 1 2019

HAWKER COLLEGE
Engage | Inspire | Achieve

Learning Brief
SMM3: Further Differentiation and Integration

Goals



This week:

- Review index laws and exponential functions
- Define logarithms definition and learn their algebraic properties

Theoretical Components

STEP 1

Resources:

- Maths Quest Year 12 Chapter 7
- Maths Quest B Year 12 for Qld Chapter 3

Index laws

- $a^x \times a^y = a^{x+y}$
- $a^x \div a^y = a^{x-y}$
- $(a^x)^y = a^{xy}$
- $a^0 = 1$
- $a^{-x} = \frac{1}{a^x}$ and $\frac{1}{a^{-x}} = a^x$
- $a^{\frac{1}{y}} = \sqrt[y]{a}$ and $a^{\frac{x}{y}} = \sqrt[y]{a^x}$
- $a^x = y \Leftrightarrow \log_a y = x$

Logarithm laws

- $\log_a 1 = 0$
- $\log_a a = 1$
- $\log_a 0$ is undefined
- $\log_a mn = \log_a m + \log_a n$
- $\log_a \frac{m}{n} = \log_a m - \log_a n$
- $\log_a m^p = p \log_a m$
- $\log_b N = \frac{\log_a N}{\log_a b}$ (change-of-base rule)

Lesson on Applications of Logarithmic Functions
https://mathspace.co/teach2/chapter/39045/1082/

Practical Components

STEP 2

Do **Exercise 3A and 3B** (in Google classroom)

On www.mathspace.co there are two custom tasks for you to complete.

1. Review Exponentials
2. Logarithm laws and properties

After the lesson on Applications of Logarithmic Functions

https://mathspace.co/teach2/chapter/39045/1082/

try the quiz at the end

Investigation

STEP 3
Complete the Adaptive Task (70% mastery)
Applications of Logarithmic Functions

QFO

Quiz/Forum/Other

Remember to scan in when you come to the Maths Area and when you leave.