

## Goals



This week we are going to:

- Identify contexts suitable for modelling by exponential and logarithms functions and use them to solve practical problems
- Solve equations and inequations involving exponential functions using technology, and algebraically methods, including use of logarithms

## Theoretical Components

Make notes on the following chapters:

### Maths Quest 11 Mathematical Methods

- 5E Logarithms
- 5F Solving logarithmic equations
- 5G Logarithmic graphs

## Practical Components

### Do the following questions:

Organise your solutions neatly in your exercise book.

You will require Chapter 5 of Maths Quest 11 Mathematical Methods (pdf – Google Classroom)

- 5E: 1b, 1c, 2g, 2h, 3-5, 8a, 8d
- 5F: 1, 2j, 2k, 3a, 3g, 4, 5a, 5b, 6-7
- 5G: 1-2

Mathspace Task

## Investigation

See next page

Other

Make sure you have joined the Google Classroom. If you have not, see your teacher.

## Week 2 Investigation

Some equations involving powers or indices can be solved using logarithms but not all.

Think about how you could go about solving the following equations. Sort them according to the tools or methods you would use, then proceed to solve using the most appropriate method. You could use the following headings to categorise your equation.

- Solve using indices
- Solve using logarithms
- Rewrite or rearrange first
- Can't solve exactly, needed CAS help

Alternatively, since some equations may come under more than one heading, you could draw this as a Venn diagram.

Ⓐ $3^x = 81$	Ⓑ $x^5 = 50$
Ⓒ $3^x = 43$	Ⓓ $5^{2x} - 5^x - 6 = 0$
Ⓔ $5^x + 4^x = 8$	Ⓕ $5^x + 2 \times 5^{1-x} = 7$
Ⓖ $3^{2x} - 3 = 24$	Ⓗ $2^{2x} - 9 \times 2^x + 8 = 0$
Ⓘ $\sqrt{2x-3} = 5$	Ⓛ $5^x - x^5 = 3$
Ⓚ $16^{\frac{3}{2}} = 8$	Ⓜ $\left(\frac{13}{16}\right)^{3x} = \frac{3}{4}$