

Summer maths escape room for A Level Maths

A Level Math Revision · A Level Maths (Year 12 and Year 13) · Student sheet

Name _____

Class _____

Date _____

No calculator needed.

Starter (5 minutes)

1. Evaluate $\sqrt{144}$.
2. Differentiate $3x^2$.
3. Evaluate $2^{-1} + 2^0$.

Main activity (36 minutes)

Cut out the cards. Each code unlocks the next card.

Lock 1: The shells

The first lock shows an index equation.

- a. Solve $5^x = 125$. This is code 1.

Code for lock 1: _____

Lock 2: The slide

$$f(x) = 2x^2 + 3.$$

- a. Find $f'(a)$, where $a = \text{code 1}$. This is code 2.

Code for lock 2: _____

Lock 3: The steps

An arithmetic sequence has first term 5 and common difference 2.

- a. Which term equals code 2 + 15? This is code 3.

Code for lock 3: _____

Lock 4: The sand

The fourth lock shows an integral.

- a. Evaluate $\int_0^2 kx^2 \, dx$, where $k = \text{code 3}$. This is code 4.

Code for lock 4: _____

Lock 5: The log lock

The fifth lock shows a logarithm.

- a. Evaluate $\log_2(\text{code 4})$. This is code 5.

Code for lock 5: _____

Lock 6: The beach hut

The last lock.

- a. Find the coefficient of x^3 in $(1 + x)^n$, where $n = \text{code 5} + 1$. It opens the hut.

Code for lock 6: _____

Extension

1. $X \sim B(10, 0.5)$. Find $P(X = 5)$ as a fraction in its lowest terms.