Escape the Room

Solve the clues hidden around the room to reveal the ten-digit code needed to escape the room.

Record the digits in the table as you crack the clues.
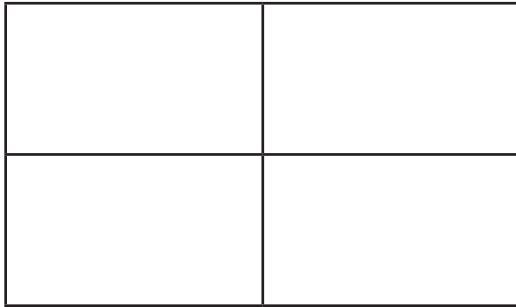
1st digit	2nd digit	3rd digit	4th digit

5th digit	6th digit	7th digit	8th digit

9th digit	10th digit

Once you have discovered the ten-digit code for the keypad, check it with your teacher and find out if you can escape the room!
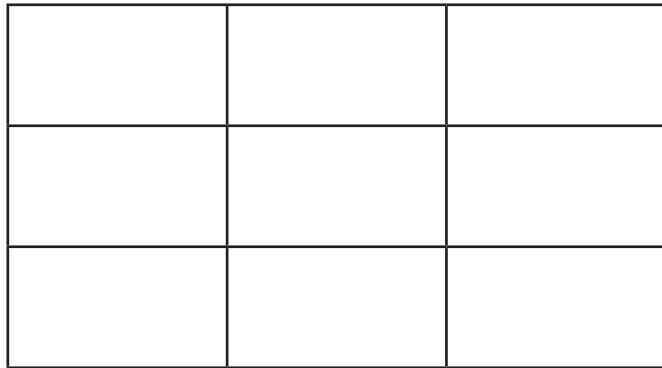
Escape the Room — Clue for Digit 1

There are 9 rectangles (including squares) in this 2 × 2 grid.

How many rectangles (including squares) are there in this 3 × 3 grid?

Add together the digits of this answer to give you the first digit of the keypad code.

Escape the Room — Clue for Digit 2

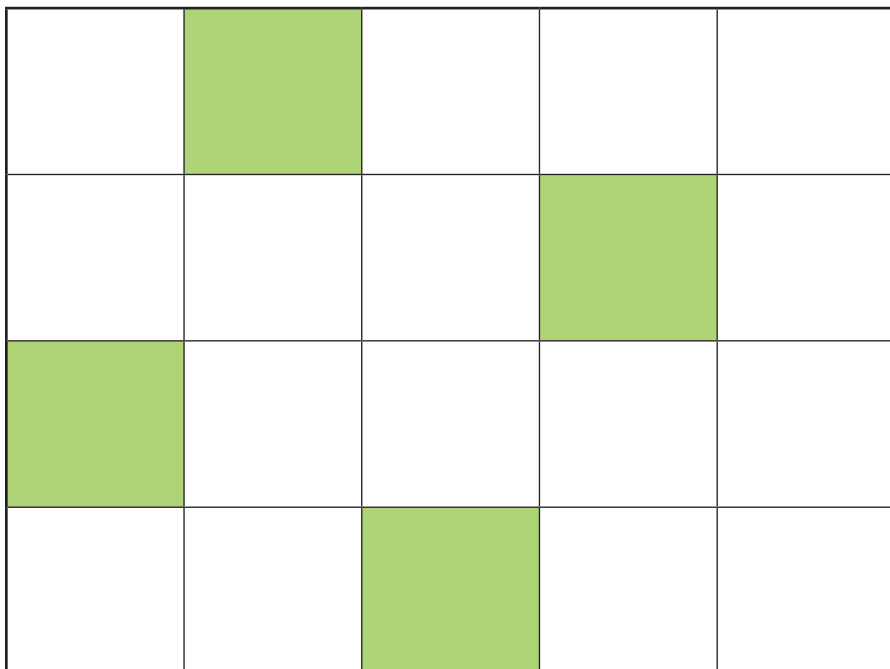Discover the smallest square number that can be written using five different Roman numerals.

Symbol	Value
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

Divide this number by 24 to discover the second digit of the keypad code.

Escape the Room — Clue for Digit 3

How many more squares need to be shaded in so that $\frac{3}{4}$ of the grid is shaded?

Add together the digits of this answer to give you the third digit of the keypad code.

Escape the Room — Clue for Digit 4

Use the clues to calculate the mystery number.

- Rounded to the nearest ten, the number is 61 460.

- The number is divisible by 4.
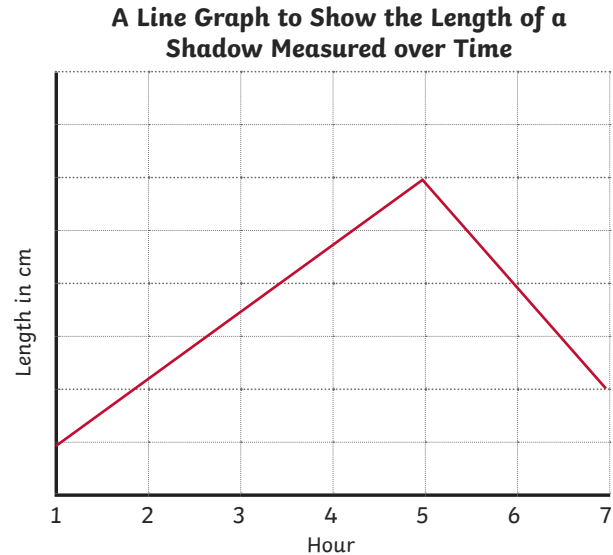
- The digit sum is even.

What is the number?

Add together the digits of the mystery number to give you the fourth digit of the keypad code.

Escape the Room — Clue for Digit 5

Here is a line graph showing the length of a shadow measured over time.

A Line Graph to Show the Length of a Shadow Measured over Time

Length in cm

Hour

- At its shortest length, the shadow measured 40cm.

- At its longest length, the shadow measured 240cm.

- What was the length of the shadow at hour 7?

The tens digit of this answer will give you the fifth digit of the keypad code.

Escape the Room — Clue for Digit 6

Work out the rule for each number sequence and find the next five numbers in each sequence.

1.	1250	1350				
2.	6750	5750				
3.	1810	1800				

Which number is common to each of the number sequences?

Add together the digits of this answer to give you the sixth digit of the keypad code.

Escape the Room — Clue for Digit 7

Use the clues to calculate the mystery two-digit number that is less than 50.

- It is one more than a prime number.
- The sum of its digits is a square number.

Add together the digits of this answer to give you the seventh digit of the keypad code.

Escape the Room — Clue for Digit 8

Use the clues to calculate the mystery five-digit number.

- The digits of the hundreds and ones total 12.
- It has two more ones than hundreds.
- It has one less ten thousand than ones.
- The digits of the thousands and hundreds total the same digit as the number of ten thousands.
- It has a digit sum of 22.

The tens digit of this answer will give you the eighth digit of the keypad code.

Calculate the difference between these pairs of numbers.

1.	23	to	-13	
2.	-16	to	27	
3.	26	to	-12	
4.	-11	to	31	
5.	21	to	-24	
6.	-8	to	35	

Which answer appears twice?

Add together the digits of this answer to give you the ninth digit of the keypad code.

Find the missing digits in these calculations.
Which missing digit is common to both calculations?

```
    2  7     4          7  0     6
 +  5     6  3       -  3     5  2
 _____          _____
    8  7     4          3  1     0
```

This answer will give you the tenth digit of the keypad code.