

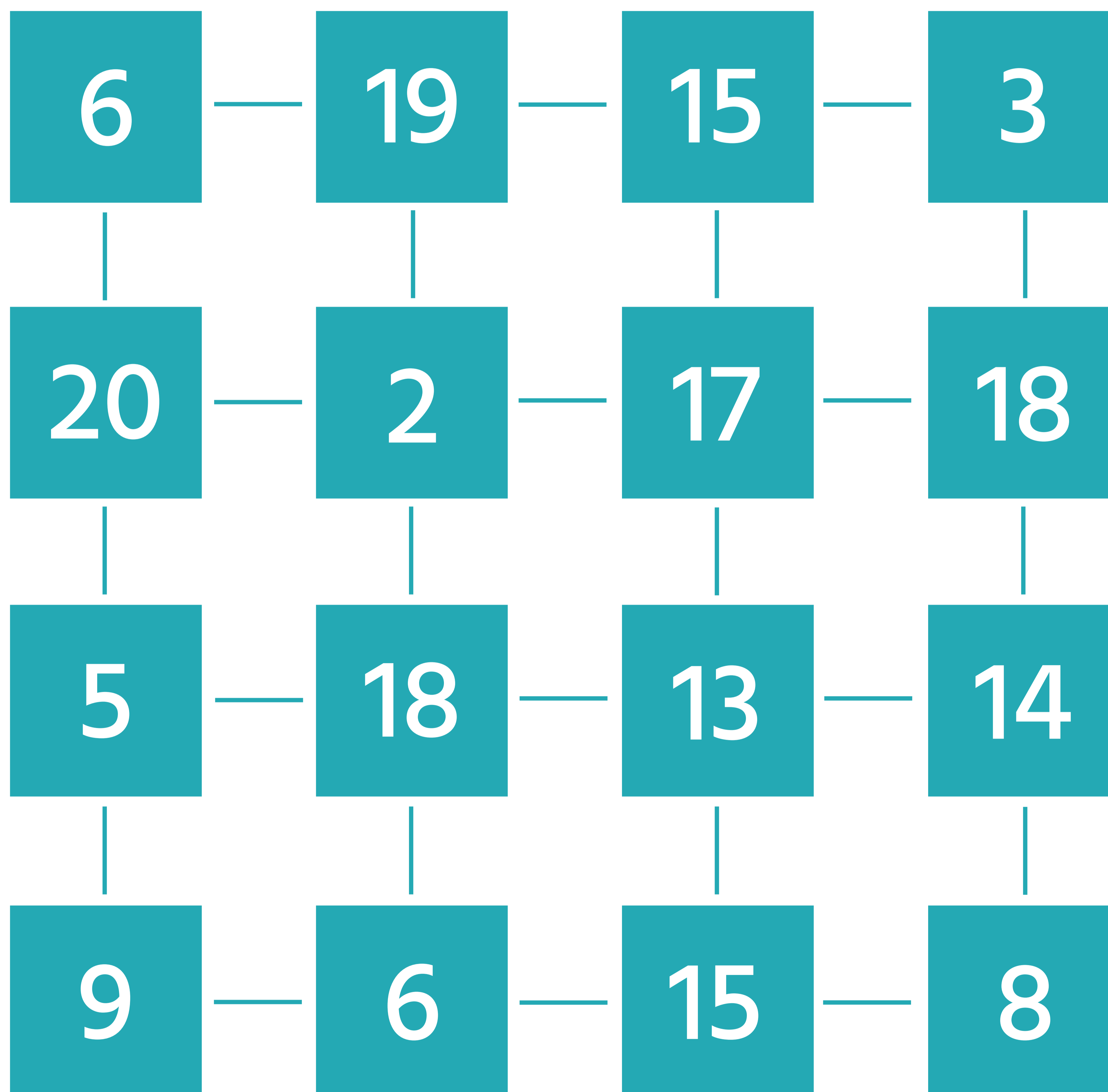
**PROBLEM SOLVING**

**1** Challenge one

Spy Seagull needs to create a route through a building. Each room has one file inside that would be helpful to his mission. He has enough time to collect five files before his helicopter picks him up.

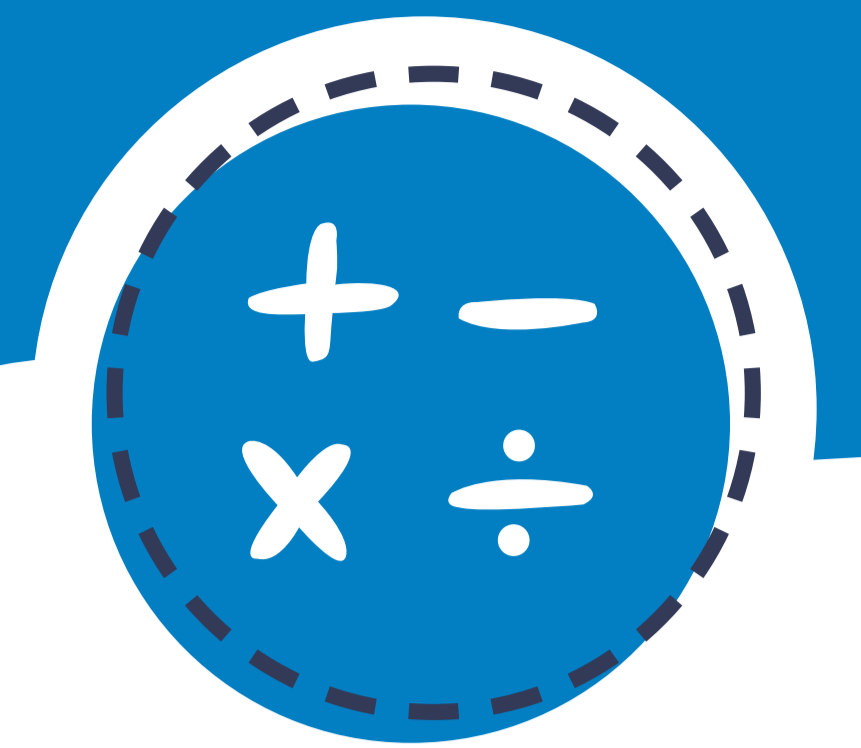
The map shows the number of enemy agents in each room.

Find the greatest and least number of enemy agents Spy Seagull would need meet whilst collecting five files.



**2** Challenge two

Can you make combinations of 58, 59 and 60 enemy agents to defeat by visiting just five rooms? You can start in any room.



**PROBLEM SOLVING**

**3** Challenge three

Spy Seagull needs to crack some code words he has intercepted through some encrypted text messages.

There are four codes below and only three words. The codes are not written in the same order as the words. Using the code numbers, work out the following questions.

POOR

POKE

TRIP

4221

1338

4275

3184

P= \_\_\_\_\_ O= \_\_\_\_\_ R= \_\_\_\_\_ T= \_\_\_\_\_ I= \_\_\_\_\_ K= \_\_\_\_\_ E= \_\_\_\_\_

**1** Find the code for the word **REPORTER**

15411351    45411354    15421851    15421351    47534231

**2** Find the word for the code **4551**

PEER    REEP    ROPE    PIKE    POOR

**3** Find the code for the word **TRIP**

31842    31845    31745    24138    42751

**4** Find the code for the word **ROOTER**

422351    133351    122384    433584    122351

**5** Find the word for the code **42751**

ROPER    POKER    ROTTER    PORTE    TRIPE