Investigation
Mobile differences

1	2	3
4	5	6
7	8	9
	0	

1. Use the mobile phone digit display.
2. Create two five-digit numbers using these two rules:

Rules

1. The digits you choose must touch along a side. So you can choose 65214 because each digit touches the next one along a side.
2. You may not use any digit other than 5 more than once. So if 98547 is your first number, then 65214 cannot be your second number as 4 is used twice.
(NB. 5 may be used twice, even within the same number, e.g. 52145).

74125

- 56980

_____

3. Find the difference between your two numbers.
4. Repeat, choosing two different numbers.
5. Find the largest possible difference that you can make, using two five-digit numbers generated according to the above rules.

Can you demonstrate that this is the largest possible difference?

6. Find the smallest possible difference. (This is much harder!)

Challenge

Demonstrate that your smallest difference is indeed the smallest.

7. Find the difference nearest to 44,444.