Arrange the digits

Mixed methods

Arrange the digits 1, 2, 3, 4, 5, 6, 7, 8, 9 into three 3-digit numbers such that their total is as close to 1500 as possible.

Arrange the digits: digital roots of 9

Resource sheet

Th	H	T	U
			2

The digit 2 is worth 2

Difference = 18

Th	H	T	U
		2	

The digit 2 is worth 20

Difference = 180

Th	H	T	U
	2		

The digit 2 is worth 200

Difference = 1800

Th	H	T	U
2			

The digit 2 is worth 2000

Wherever the 2 is moved, what you gain is always a multiple of 9.

Is this true for any number?

How does this relate to the problem 'Arrange the digits'?