Permutations
Example 2

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Permutations

Suppose a four letter code is made from the letters $\{$**a,b,c,d,e**$\}$, where repetitions are allowed and the order of the letters in the code is significant

For example **a,a,e,c** is a different code to **a,c,e,a**.

Permutations

- Let $\mathcal{U}$ be the set of all such codes.
- Let $\mathcal{V}$ be the set of all such codes beginning with a vowel.
- Let $\mathcal{P}$ be the set of all such codes which are palindromic.

(A palindromic code is a string of letters which read the same backwards as forwards, for example **a,e,c,e,a** is a 5 letter palindromic code.)

Permutations

How many elements are there in the set $\mathcal{U}$?

(i)	(ii)	(iii)	(iv)

Permutations

How many elements are there in the set $\mathcal{V}$?

(i)	(ii)	(iii)	(iv)

Permutations

How many elements are there in the set $\mathcal{P}$?

(i)	(ii)	(iii)	(iv)

Permutations

How many elements are there in the sets $\mathcal{V}$ and $\mathcal{P}$?

(i)	(ii)	(iii)	(iv)

Empty