4.

The domain is all values that k is allowed to be.
Since I can't divide by zero (division by zero isn't allowed,
I need to find all values of k that would cause division by zero.
The domain will then be all other k-values.
When is this denominator equal to zero?

$k^4 + 4 = 0$

impossible , then the domain of e is $(-\infty, \infty)$ i.e. $k \in \mathbb{R}$