4.

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

$2m^4 + 9 = 0$

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