4.

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

$3h^4 + 1 = 0$

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