The domain is all values that z is allowed to be.

The domain will then be all other z-values.

When is this denominator equal to zero? $3z^4+4=0$

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

Since I can't divide by zero (division by zero isn't allowed, I need to find all values of z that would cause division by zero.