

5.

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

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.
The domain will then be all other z -values.

When is this denominator equal to zero?

$$3z^4 + 16 = 0$$

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