1.

The domain is all values that r is allowed to be.
Since I can't divide by zero (division by zero isn't allowed,
I need to find all values of r that would cause division by zero.
The domain will then be all other r-values.
 When is this denominator equal to zero?
$r^2 - 16 = 0$
$r = \pm 4$ then the domain of k is $\{r \mid r \neq 4 \text{ or } -4\}$