Consider the equation $x^2 + (y - 2)^2 = 1$ and the relation "(x, y) R (0, 2)", where R is read as "has distance 1 of".

For example, "(0, 3) R (0, 2)", that is, "(0, 3) has distance 1 of (0, 2)". **This relation can also be read as "the point (x, y) is on the circle of radius 1 with center (0, 2)".** In other words: "(x, y) satisfies this equation $x^2 + (y-2)^2 = 1$, if and only if, (x, y) R (0, 2)".

Does this equation determine a relation between x and y? Can the variable x can be seen as a function of y, like x=g(y)? Can the variable y be expressed as a function of x, like y= h(x)? If these are possible, then what will be the domains for these two functions? What are the graphs of these two functions?

Are there points of the coordinate axes that relate to (0, 2) by means of R?

Your Discussion should be a minimum of 250 words in length and not more than 750 words.