P(x) = x2 +1 ≥ 2x.

Let’s make 3 cases where x is negative, positive and 0.

1. If we take x as negative then the left side (x2 +1) will always be positive because of the negative being squared whereas the right side (2x) would be negative since there is no squaring and the coefficient of x is positive (2). Therefore, left side will always be greater than right.
2. Now if we take x as positive then the left side will still be bigger than the right because of the ‘+1’. Since 22 is equal to 2(2) but right side has the ‘+1’ which makes it bigger. Also any values less than 1 (decimals) would also be greater on the left side. Therefore, when x is positive left side remains greater and equal (x = 1) to the left side.
3. Now when x is 0 left side is equal to 1 and right side is equal to 0 which makes right side greater than left side.

Using those 3 cases we can then answer the following questions.

1. As stated in the 3 cases the left side (x2 + 1) is always greater than or equal to the right side (2x). Therefore, the truth value for this is TRUE.
2. If all values of x make the statement true as shown in part A.) then there exists a x value that makes the statement true therefore the truth value for this is TRUE.
3. The truth value for this is FALSE since it is the negation of part A and also as stated left side is always greater or equal to right and never less than.
4. This is also FALSE since it is the negation of part B