**MINIMUM VALUE PROBLEM**

Over all real numbers, find the minimum value of a positive real number, y such that

At stationary point, the rate of change in x will equal zero, and the second rate of change in x will result in a positive value.

Hence,

Thus, we need to find the first derivative of

Recall that

⇒

Equating to zero and solving then gives

Then

Squaring both sides

Dividing the numerator and denominator of the L.H.S all through with with and numerator and denominator of the R.H.S all through with .

This gives:

From the equation above, the equation can only be true if and only if:

Taking the square root of both sides, we have:

This implies that:

Taking the first case:

This implies:

⇒ ⇒

⇒ ⇒

Taking the second case:

This implies:

⇒ ⇒

⇒ ⇒

The maximum point gives the minimum value, hence would give the maximum value y, hence;

When x = ,

So, the minimum value of y is given as: