**Proof-reading**

Check that whether the following method is correct or not.

Given , find its

**(a)** optimum point(s) ;

**(b)** point of inflection.

**(a)** Let

( is rejected)

When 0 < x < 1, and when x > 1, .

By the First Derivative Test, is a local max. when .

Local Max. of g(x) = .

Since and f(0)=0.

Hence, the absolute maximum of f(x) == when .

∴ f(0) = 0 is the absolute minimum.

**(b)**

Since , and obviously when , is not a point of inflection, .

Also changes sign when x goes through .

Therefore when is a point of inflection.

f() ==

∴ Point of inflection is .

**(a)** Part (a) is still correct.

,

( is rejected)

When 0 < x < 1, and when x > 1, .

By the First Derivative Test, is a local max. when .

Max. of f(x) = .

**(b)** Part (b) is **NOT** correct. The differentiation is a bit longer, have patenice.

Put u = ,

2

(x>0)

When x is slightly smaller than , is slightly smaller than ,

is slightly smaller than 0.

When x is slightly bigger than , is slightly bigger than ,

is slightly bigger than 0.

change sign as x goes through x = . It is a point of inflection.

, Point of inflection is

**Taking square root cannot change the optimum points of a curve (if the curve is well defined) but may change the points of inflection of the curve.**

**Small exercise**

Find the point of inflection of the curve:

(a) , where .

(b) , where .

(a)

(b)

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