OM Review - XXII

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https://forms.gle/KBnSvymXvWEJDo7L6

Question 1

Gradient descent utilizes a _____ approximation of f to minimize a function $f(x)$:

(A) linear

(B) quadratic

(C) cubic

(D) biquadratic

Question 2

The gradient of a scalar function at minima is:

(A) +ve

(B) -ve

(C) 0

(D) Can't say

Question 3

The gradient of a scalar function at maxima is:

(A) +ve

(B) -ve

(C) 0

(D) Can't say

Question 4

The 2nd derivative of a scalar function at minima is:

(A) +ve

(B) -ve

(C) 0

(D) Can't say

Question 5

The 2nd derivative of a scalar function at maxima is:

(A) +ve

(B) -ve

(C) 0

(D) Can't say

Question 6

We are trying to find the minimum of the function

$$f(x, y) = x^2 + y^2$$

using Newton's method. Use the point (2, 1) as the initial point. Enter the value of (x, y) after first iteration.

Question 7

We are trying to find the minimum of the function

$$f(x, y) = x^2 + y^2$$

using Newton's method. Use the point (2, 1) as the initial point. Enter the value of (x, y) at convergence.

Question 8

Statement: The update equation for finding the minimum of a function using Newton's method is same as the update equation for finding the maximum using Newton's method.
The statement above is

(A) True

(B) False

(C) True or False depending on the function.