

Tangent Plane Approximations MCQ Questions

Q1. “Tangent plane does not exist at points where the function is non-differentiable.”

- TRUE
- FALSE

Q2. Find the equation of the tangent plane to the surface defined by the function $f(x, y) = 2x^2 - 3xy + 8y^2 + 2x - 4y + 4$ at point $(2, -1)$

- $z = 13x - 26y - 18$
- $z = 13x - y$
- $z = x - 26y - 2$
- $z = x - y - 18$

Q3. “Pierre de Fermat used the notion of maxima and the infinitesimal to find the tangent to a curve.”

- TRUE
- FALSE

Q4. Tangent Plane for all the extrema and saddle points of a function is always parallel to the $x - y$ plane

- TRUE
- FALSE

Q5. The equation of a tangent plane is:

- $z - z_0 = f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0)$
- $z = f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0)$
- $z_0 = f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0)$

ANSWER KEY

Q1. TRUE

Q2. $z = 13x - 26y - 18$

Q3. TRUE

Q4. TRUE

Q5. $z - z_0 = f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0)$