





The tangent plane to the surface  $z = f(x, y)$  at the point  $(x_0, y_0, z_0)$  is the plane that is tangent to the surface at that point.

The equation of the tangent plane is given by:

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

where  $f_x$  and  $f_y$  are the partial derivatives of  $f$  with respect to  $x$  and  $y$ , respectively.

The tangent plane is a good approximation of the surface near the point of tangency.

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