

CONSTRUCTIONS

1. Let $z = f(x, y) = x^2 + y^2$. Find parametric equations for the cross-section of this surface with the plane $x = 1$.
2. Let $z = f(x, y) = x^2 + y^2$. Find parametric equations for the tangent line at the point $P = (1, 2, 5)$ that lies in the plane $x = 1$.
3. Let $z = f(x, y) = x^2 + y^2$. Find parametric equations for the cross-section of this surface with the plane $y = 2$.
4. Let $z = f(x, y) = x^2 + y^2$. Find parametric equations for the tangent line at the point $P = (1, 2, 5)$ that lies in the plane $y = 2$.
5. Let $z = f(x, y) = x^2 + y^2$. Find parametric equations for the tangent plane to this surface at the point $P = (1, 2, 5)$.
6. Let $z = f(x, y) = x^2 + y^2$. Find an equation for the tangent plane to this surface at the point $P = (1, 2, 5)$. Write your answer in the form $z = Ax + By + C$.