

MATH 2415 Test 3

Name: _____

1. Consider the curved surface S defined by $x^6y^3 - 2z = 1$. Let T be plane tangent to S at $(1, 1, 0)$. Find a nonzero vector that is perpendicular to T .

2. Consider a particle moving in two-dimensional space such that at the current time, its position is $(x, y) = (5, 8)$, its distance r from the origin is changing at a rate $dr/dt = -1$, and its angular position θ is changing at a rate of $d\theta/dt = 6$. Compute the current values of dx/dt and dy/dt .