

Problem Set 7 - Math Tutorial Calculus II

1. Find an approximate value for $f(0.98, 0.51)$ for $f(x, y) = 3 + \cos(\pi xy)$.
2. Find the gradient of $f(x, y, z) = \frac{x+y}{e^z}$ at $\vec{a} = (3, -1, 0)$.
3. Find $D\mathbf{f}$ for $\mathbf{f}(x, y, z) = (3x - 7y, 5x + 2z, y - 6z, 2x)$ at $\mathbf{a} = (1, 2, 3)$
4. Draw the graphs of the following functions. Find an equation for the plane tangent to each graph at the given point $(a, b, f(a, b))$.
 - (a) $f(x, y) = 3$, $a = 5$ and $b = 2$,
 - (b) $f(x, y) = x^2 + y^2$, $a = -2$, $b = 1$,
 - (c) $f(x, y) = \sqrt{x^2 + y^2}$, $a = 2$, $b = 0$,
 - (d) $f(x, y) = |x|$, $a = -1$, $b = 3$.