

Practice Sheet: Taylor Expansion of a two variable function

Determine the 1st- and 2nd-degree Taylor polynomial approximations, $L(x, y)$ & $Q(x, y)$, for the following functions of x and y near the given point.

1. a. $f(x, y) = \sin 2x + \cos y$ for (x, y) near the point $(0, 0)$

b. $f(x, y) = xe^y + 1$ for (x, y) near the point $(1, 0)$

2. $f(x, y) = x\sqrt{y}$, $P(1, 4)$

3. $f(x, y) = e^x \cos y$; $P(0, 0)$