Taylor Series in 2 Variables- HW Problems

Find the second order Taylor formula around $(0,0)$ and approximate the value of $f(0.1, 0.5)$.

1. $f(x,y) = e^y \sin(x)$
2. $f(x,y) = e^{(-x^2-y^2)} \sin(xy)$

3. Let $f(x,y) = xsin(y) - ycos(x)$. Find the second order Taylor polynomial at the point $\left(\pi, \frac{\pi}{2}\right)$. Use this formula to approximate $f(\pi + 0.1,\ \frac{\pi}{2} - 0.1)$.