Show all work, including mental steps, in a clearly organized way that speaks for itself. Use proper mathematical notation/syntax. Identify expressions with their proper symbols (introduce them if necessary). Label parts. [Box] final short answers.

1. Find the equations of (a) the tangent plane and (b) the normal line to the given surface at the specified point:

   \[ xy + yz + zx = 11 \]  \( (1, 2, 3) \).

2. Evaluate the directional derivative \( D_{\mathbf{u}} f(1, 2) \) of the function

   \[ f(x, y) = \sqrt{x^2 + 2y^2} \]

   at the point \( (1, 2) \) in the direction from the origin \( (0, 0) \) to this point.