Print Your Name Legibly: _____

Score: _____

Instructions: You must show supporting work to receive full and partial credits. Textbook, notes, cheat sheets, calculators are not allowed.

1(12pts) For function z = f(x, y) = -2x + y - 1, sketch the x = 0 section curve, the z = 0 section curve, each in a separate coordinate plot.

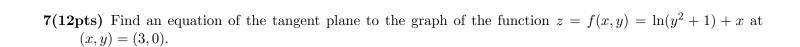
2(15pts) Let $\vec{u} = \langle 1, 0, 1 \rangle$, $\vec{v} = \langle 1, -1, 1 \rangle$. Find the following.

(a) Find the angle between \vec{u} and \vec{v} .

(b) Find the area of the parallelogram with \vec{u} and \vec{v} being its two adjacent sides.







8(14pts) (a) For functions $z = f(x, y) = xe^y$, $x = u(s, t) = \sin(s + t)$, and $y = v(s, t) = \ln s$, use the chain rule to find $\frac{\partial z}{\partial s}$. (Simplification is not needed.)

(b) Find the value of $\frac{\partial z}{\partial s}$ at (s,t)=(1,-1).