**For full credit, you must** <u>**show all work neatly**</u> **and** <u>**box**</u> **your final answer.**
**This Quiz has 2 problems. Please turn page over for other problems.**

1. Given
$$
\begin{cases}
\mathbf{r}'(t) & = \ \langle e^t, \sqrt{2}, e^{-t} \rangle \\[2mm]
\mathbf{T}'(0) & = \ \left\langle \dfrac{1}{2}, 0, -\dfrac{1}{2} \right\rangle
\end{cases}
\qquad \text{for } t \geq 0 \text{ find the following:}
$$

(a) Compute $\kappa(0)$.

(b) Compute $s(t)$.

(c) Compute $\mathbf{B}(0)$.

[**Please turn over for additional problem(s)**]

2. Given

$$f(x, y) = \frac{\ln(x^2 + y)}{1 + \ln(x^2 + y)}.$$

(a) Determine the domain of $f(x, y)$.

(b) Is 1 in the range of $f(x, y)$? Show your work.