

Name _____

Let $\mathbf{u}(t) = \langle e^{-t^2}, \ln(t), 6 \rangle$ and $\mathbf{v}(t) = \langle 8 - e^{-t^2}, -\ln(t), \frac{2t^3 + 1}{3t^3} - 6 \rangle$.

1. Calculate $\frac{d}{dt} t\mathbf{u}(t)$.

2. Calculate $\lim_{t \rightarrow \infty} (\mathbf{u}(t) + \mathbf{v}(t))$.