

Full name: _____ GT ID: _____ Sec: _____

Quiz 5 Version B

You have 15 minutes to take the quiz. No phones, notes, or use aids of any kind is permitted.

1. (4 points) [
- Directional Derivative**
-]

Find the derivative of the function at P in the direction of \mathbf{u} . [AJN]

$$f(x, y, z) = x^2 + 2y^2 - 3z^2, \quad P(1, 1, 1), \quad \text{and } \mathbf{u} = \mathbf{i} + 2\mathbf{j} + \mathbf{k}.$$

2. (6 points) [
- Tangent Planes and Linearization**
-]

Find the linearization of the function at the given point.

[AJN]

$$f(x, y) = e^{2x-y}, \quad \text{at } Q(1, 2).$$