Math 301 (051) Quiz 1

Question 1 Find directional derivative of \( f(x,y) = \frac{1}{\sqrt{10}} xy^3 \) at (1, 1) in the direction of \( \theta = \pi/6 \)

Question 2 Given \( r(t) = \sqrt{2} \cos t \mathbf{i} + \sqrt{2} \sin t \mathbf{j} + 2k \), find \textbf{arc length} for \( t > 0 \) and \( r'(s) \)
Math 301 (051) Quiz 1

Question 1 Find directional derivative of \( f(x, y) = x^2 \tan y \) at \( \left( \frac{1}{2}, \frac{\pi}{3} \right) \) in the direction of negative y axis.

Question 2 Given \( \vec{r}(t) = t \vec{i} + 2t \vec{j} + k \), find \textbf{arc length} for \( t > 0 \) and \( r'(s) \).