Math 20E

August 7, 2013

Question 1 Given a path $\mathbf{c}(t)$ in $\mathbb{R}^n$, its derivative $\mathbf{c}'(t)$ represents a tangent vector to the corresponding curve at all values of t where

A. the derivative $\mathbf{c}'(t)$ exists.

B. the derivative $\mathbf{c}'(t)$ is continuous.

***C.** the derivative $\mathbf{c}'(t)$ exists and is not zero.

D. $\mathbf{c}'(t)$ is a unit vector.

E. both **B** and **C**.

Question 2 Given a function $f(x, y, z)$, the gradient of f at the point (a, b, c) is

A. $\mathbf{D}f(a, b, c)$, the derivative of f at (a, b, c).

B. A vector that is normal to the level surface
  $f(x, y, z) = f(a, b, c)$.

C. A vector that that points in the direction of greatest
  increase of $f(x, y, z)$ from (a, b, c).

D. both **B** and **C**.

E. **A**, **B** and **C**.