

## MTH241 Fall 2024: Quiz 03

Name:

UID:

Closed book, no calculator, show your work clearly.

1. (5pt) Let  $\vec{F}(t) = e^t \vec{i} + \ln t \vec{j} + \frac{1}{t^2} \vec{k}$  and  $g(t) = \sqrt{t}$ . Find the domain and the derivative of  $\vec{F} \circ g$ .  
(Grading: **2pt**: working; **1pt**:  $\vec{F} \circ g$ ; **1pt**: domain; **1pt**: derivative)

2. (5pt) Let  $\vec{F}(t) = 2t^3 \vec{i} + e^t \vec{j} + \sin(t) \vec{k}$ . Find  $\int_0^\pi \vec{F}(t) dt$  (Grading: **2pt**: working; **3pt**: correct integral for each component)

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