MTH 266, Quiz #4, Fall 2018 Name _____

Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Consider the transformation $T: P_n \to P_{n+1}$ such that $T(f) = \int_0^t f(x)dx$. If $f(x)$ is any polynomial in P_n, use the definition of a linear transformation to show that T is linear.

2. Compare Problem #1 to the following: Consider the transformation $T: R^3 \to R^3$ such that $T(\vec{x}) = A\vec{x}$. If $\vec{x}$ is any vector in R^3, use the definition of a linear transformation to show that T is linear. [Hint: use properties of a matrix.]