13.2, number 1: **Evaluate** $\int_0^1 [t^3 \vec{i} + 7\vec{j} + (t+1)\vec{k}]dt.$

Answer: The integral is equal to

$$(\frac{t^4}{4}\vec{i} + 7t\vec{j} + (\frac{t^2}{2} + t)\vec{k})\Big|_0^1$$
$$= \boxed{\frac{1}{4}\vec{i} + 7\vec{j} + \frac{3}{2}\vec{k}}$$