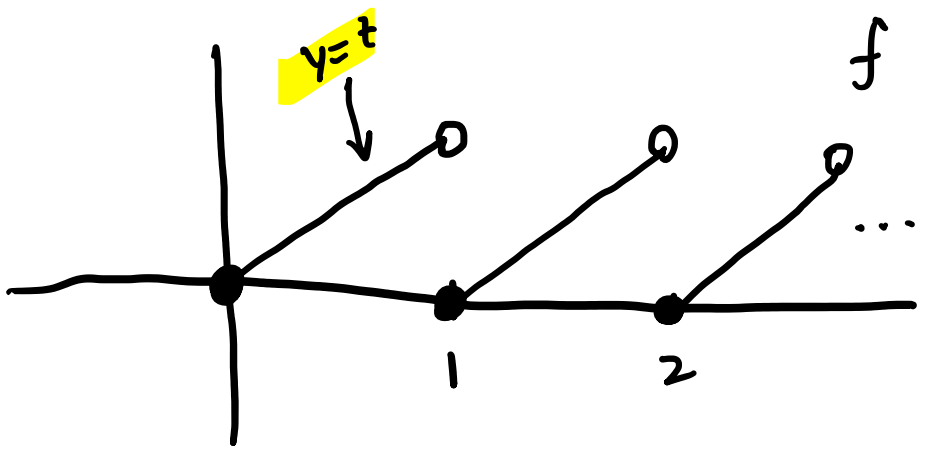
Quiz 12 MTH 335 Fall 2026

Sunday, November 8, 2026 9:25 AM



f periodic with period $T=1$

$$\Rightarrow \mathcal{L}\{f3(s)=\frac{1}{1-e^{-s}}\int_0^1 e^{-st}\,t\,dt \qquad u=t \quad dv=e^{-st}$$

$$du=dt \quad v=-\frac{1}{s}e^{-st}$$

$$=\frac{1}{1-e^{-s}}\left[-\frac{t}{s}e^{-st}\Big|_{t=0}^{t=1}-\int_0^1\left(-\frac{1}{s}\right)e^{-st}\,dt\right]$$

$$=\frac{1}{1-e^{-s}}\left[\left(-\frac{1}{s}e^{-s}-0\right)+\frac{1}{s}\left[-\frac{1}{s}e^{-st}\Big|_{t=0}^{t=1}\right]\right]$$

$$=\frac{1}{1-e^{-s}}\left[-\frac{1}{s}e^{-s}-\frac{1}{s^2}e^{-s}+\frac{1}{s^2}(1)\right]$$