d) Calcular $E(x)$

$$E(x) = \int_{-\infty}^{+\infty} t f_x(t)\, dt$$

$$\int_{-\infty}^{0} t f_x(t) dt + \int_{0}^{1} t f_x(t)\, dt + \int_{1}^{+\infty} t f_x(t) dt =$$

$$\int_0^1 t \cdot \left[t + \frac{3t^2}{2} \right] dt = \int_0^1 t^2 + \frac{3t^3}{2}$$

$$\frac{t^3}{3} + \frac{3}{2}\frac{t^4}{4} = \frac{t^3}{3} + \frac{3t^4}{8} \Big|_0^1 = \frac{1}{3} + \frac{3}{8} = \frac{8+9}{24} = \frac{17}{24}$$