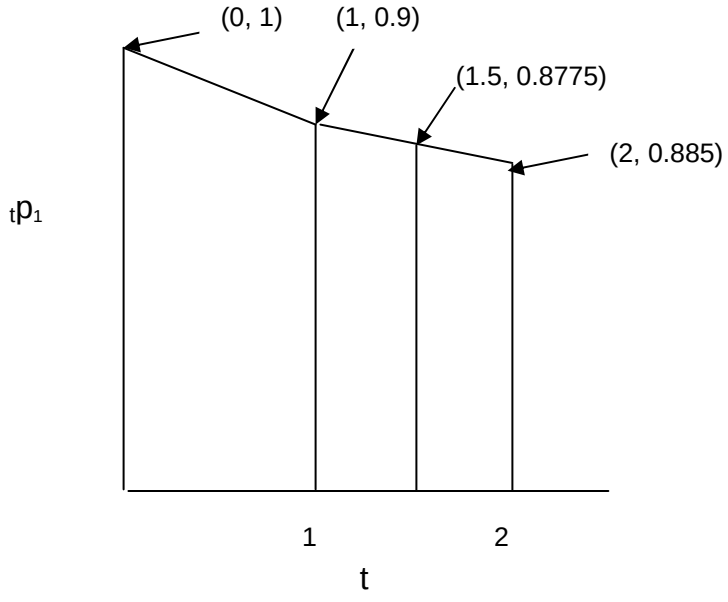
Question #120
Answer: D



$${}_1p_1 = (1-0.1) = 0.9$$
$${}_2p_1 = (0.9)(1-0.05) = 0.855$$

since uniform, ${}_{1.5}p_1 = (0.9+0.855)/2$
$= 0.8775$

$\mathring{e}_{1:\overline{1.5}|} =$ Area between $t = 0$ and $t = 1.5$
$$= \left(\frac{1+0.9}{2}\right)(1) + \left(\frac{0.9+0.8775}{2}\right)(0.5)$$
$$= 0.95 + 0.444$$
$$= 1.394$$

Alternatively,

$$\mathring{e}_{1:\overline{1.5}|} = \int_0^{1.5} {}_t p_1 \, dt$$

$$= \int_0^1 {}_t p_1 \, dt + {}_1 p_1 \int_0^{0.5} {}_x p_2 \, dx$$

$$= \int_0^1 (1 - 0.1t) dt + 0.9 \int_0^{0.5} (1 - 0.05x) dx$$

$$= \left[t - \frac{0.1t^2}{2} \right]_0^1 + 0.9 \left[x - \frac{0.05x^2}{2} \right]_0^{0.5}$$

$$= 0.95 + 0.444 = 1.394$$