

250. The CAS Insurance Company classifies its auto drivers as Preferred (State 1) or Standard (State 2) at time 0, which is the start of the first year the driver is insured. After issue, drivers are continuously reclassified.

For a driver, Anne, you are given:

- (i) $[x]$ denotes Anne's age at time 0.
- (ii) For $k = 0, 1, 2, \dots$,

$$p_{[x]+k}^{11} = 0.7 + \frac{0.1}{k+1}$$

$$p_{[x]+k}^{12} = 0.3 - \frac{0.1}{k+1}$$

$$p_{[x]+k}^{21} = 0.4 - \frac{0.2}{k+1}$$

$$p_{[x]+k}^{22} = 0.6 + \frac{0.2}{k+1}$$

- (iii) Anne is classified Preferred at the start of year 2.

Calculate the probability that Anne is classified Preferred at the start of year 4.

- (A) 0.55
- (B) 0.59
- (C) 0.63
- (D) 0.67
- (E) 0.71