

### Question #53

Answer: E

$$g = -\ln(0.96) = 0.04082$$

$$\mu_{x+t:y+t}^{02} = 0.04082 - 0.01 = 0.03082$$

$$h = -\ln(0.97) = 0.03046$$

$$\mu_{x+t:y+t}^{01} = 0.03046 - 0.01 = 0.02046$$

$${}_5P_{xy} = {}_5P_{xy}^{00} = \exp\left(-\int_0^5 \mu_{x+t:y+t}^{01} + \mu_{x+t:y+t}^{02} + \mu_{x+t:y+t}^{03} dt\right) = e^{-5(0.06128)} = 0.736$$