Solutions

Each answer shows the steps, then the **result**.

2.1

- $P(X = 0) = e^{-2} = 0.135$

2.2

- variance $= \lambda = 4.5$

3.1 C

- For a Poisson distribution the mean is λ

3.2

(a)

- $P(X = 2) = e^{-1.5}\dfrac{1.5^2}{2!} = e^{-1.5}(1.125) = 0.251$

(b)

- over 2 minutes $\lambda = 3$; $P(X \geqslant 1) = 1 - e^{-3} = 1 - 0.0498 = 0.950$

3.3

- $\lambda = np = 400 \times 0.005 = 2$; $P(X = 3) = e^{-2}\dfrac{2^3}{3!} = e^{-2}\dfrac{8}{6}$; $= 0.1353 \times 1.333 = 0.180$