第四章

6、(1)是，離散的

(2) $X \sim B(10, 0.5)$

$P(X \geq 6) = 1 - P(X \leq 5)$

$= 1 - 0.623$

$= 0.377$ ✱

$P(X=x) = \frac{e^{-k} \cdot k^x}{x!}$

(3) $P(X \leq 4) = 0.377$ ✱

$P(X=k) = \sum_{x=0}^{k} \frac{M^x}{x!} e^x$

34、令X為一個月內發生無預警停駛的次數，則 $X \sim P_o(0.5)$

(1) $P(X=0) = \frac{e^{-0.5} 0.5^0}{0!} = e^{-0.5} = 0.6065$

(2) $P(X \geq 1) = 1 - P(X=0) = 1 - e^{-0.5} = 0.3935$

35、令X為10呎寬、30呎長的玻璃氣泡瑕疵個數，則 $X \sim P_o(3)$

(1) $P(X=0) = \frac{e^{-3} 3^0}{0!} = 0.0498$

(2) $P(X=2) = \frac{e^{-3} 3^2}{2!} = 0.224$

39、令X為上網時間長度，則 $X \sim N(5, 3.5^2)$

$P(X>8) = P(Z > \frac{8-5}{3.5})$

$= P(Z > 0.86)$

$= 1 - 0.8051 = 0.1949$ ✱

8、設X表示林書豪在2012~2013年球季每場球的得分，由題意可知 $X \sim N(13.2, 5.3^2)$

(1) $P(X>15) = P(\frac{X-13.2}{5.3} > \frac{15-13.2}{5.3})$

$= P(Z > 0.34) = 1 - P(Z \leq 0.34)$

$= 1 - 0.6331 = 0.3669$ ✱

(2) $n=16$，$\because X \sim N(13.2, 5.3^2)$

$\therefore \bar{X} \sim N(13.2, \frac{5.3^2}{16})$

$\Rightarrow \frac{\bar{X}-13.2}{\frac{5.3}{\sqrt{16}}} \sim N(0,1)$

故 $P(\bar{X}>15) = P(\frac{\bar{X}-13.2}{\frac{5.3}{\sqrt{16}}} > \frac{15-13.2}{\frac{5.3}{\sqrt{16}}})$

$= P(Z > 1.36) = 1 - P(Z \leq 1.36)$

$= 1 - 0.9131 = 0.0869$ ✱