第一題

X = 在距離山頂 1000 公尺以內停下來且贏

$$Allpossible = \int_0^{3000}\int_0^{3000-y} 1dxdy = 4500000$$

$$X = \int_0^{1000}\int_0^{y} 1dxdy = 500000$$

$$P(X) = \frac{1}{9}$$

$$K = 0.1$$

第二題

$$P(x) = \frac{x^2}{3}$$

$$E[X^2] = u = \int_{-1}^{2} x^2 \times \frac{x^2}{3}dx = \frac{11}{5}$$

$$E[X^4] = \int_{-1}^{2} x^4 \times \frac{x^2}{3}dx = \frac{43}{7}$$

$$\Phi^2 = E[X^4] - E[X^2]^2 = \frac{228}{175}$$

假設n=49夠大，足以使抽樣平均值 = u

抽樣分布 $= N(u, \Phi^2/n) = N(\frac{11}{5}, \frac{228}{8575})$

$$P(2 < x < \frac{11}{5}) = P(-1.2265 < Z < 0) = 0.39$$