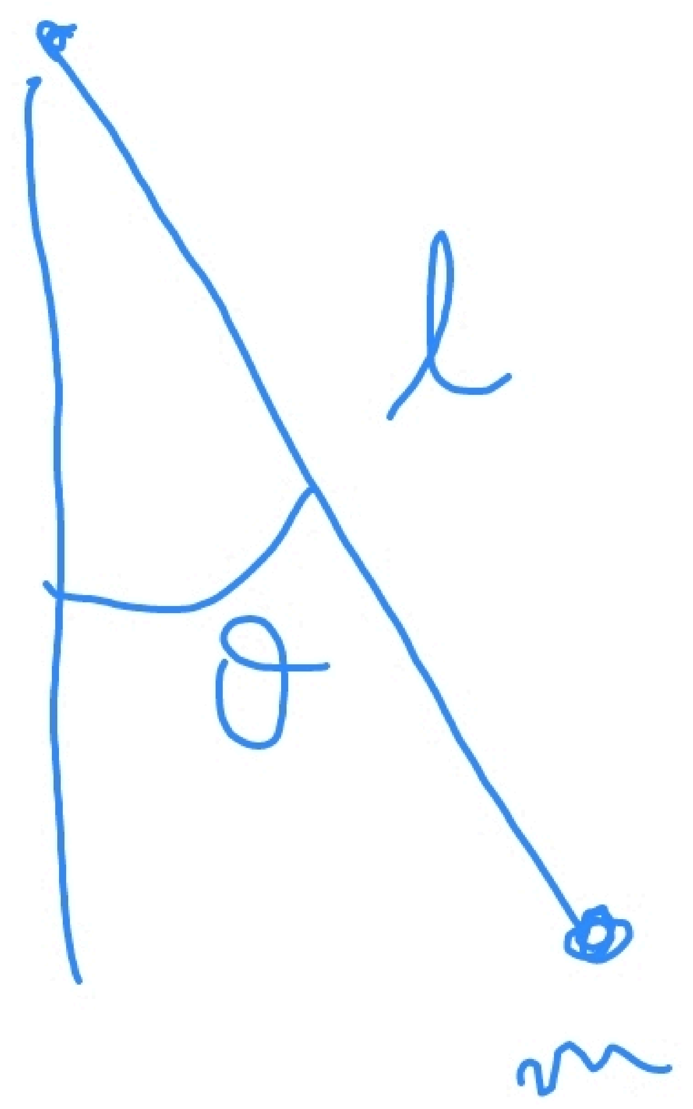


$$\sum \tau = I \frac{d^2\theta}{dt^2} = -mgl\sin\theta$$

$$I = ml^2 \qquad \ddot{\theta} = -\frac{g}{l}\sin\theta$$

$$\omega = \dot{\theta} = \frac{d\theta}{dt}$$

$$\ddot{\theta} = \frac{d\omega}{dt} \qquad \left.\begin{aligned} \frac{dy_1}{dt} &= \frac{d\theta}{dt} = \omega \\ \frac{dy_2}{dt} &= \frac{d\omega}{dt} = -\frac{g}{l}\sin\theta \end{aligned}\right]$$

$$\vec{y} = (\theta, \omega)$$

$$\frac{d\vec{y}}{dt} = \vec{f}(t; \vec{y})$$

h_1 RK4 $\Rightarrow$ err_1 $\qquad p = 4$

$$y(x+h) = y_{est} + O(h^5)$$

$$err_1 = C h_1^5$$

$$err_0 = C h_0^5$$

$$C = \frac{err_1}{h_1^5} = \frac{err_0}{h_0^5} \Rightarrow h_0^5 = h_1^5 \left(\frac{err_0}{err_1}\right)$$

$$\Rightarrow \boxed{h_0 = h_1 \left(\frac{err_0}{err_1}\right)^{1/(p+1)}}$$

$$\boxed{(\Delta t)' = (\Delta t)\left(\frac{err_0}{err_1}\right)^{1/(p+1)}}$$

Poisson $X \in \{0, 1, 2, \ldots, \infty\}$

$$\text{Probability}(X = n ; \mu) = \frac{\mu^n e^{-\mu}}{n!}$$

$\mu = 1.0$

$p(X=0) = e^{-1}$

$p(X=1) = e^{-1}$

$p(X=2) = \frac{1}{2} e^{-1}$

$\vdots$

$n = 4, \quad \mu_i = \pi_i(m_{\sim}) \, \mathcal{L}$

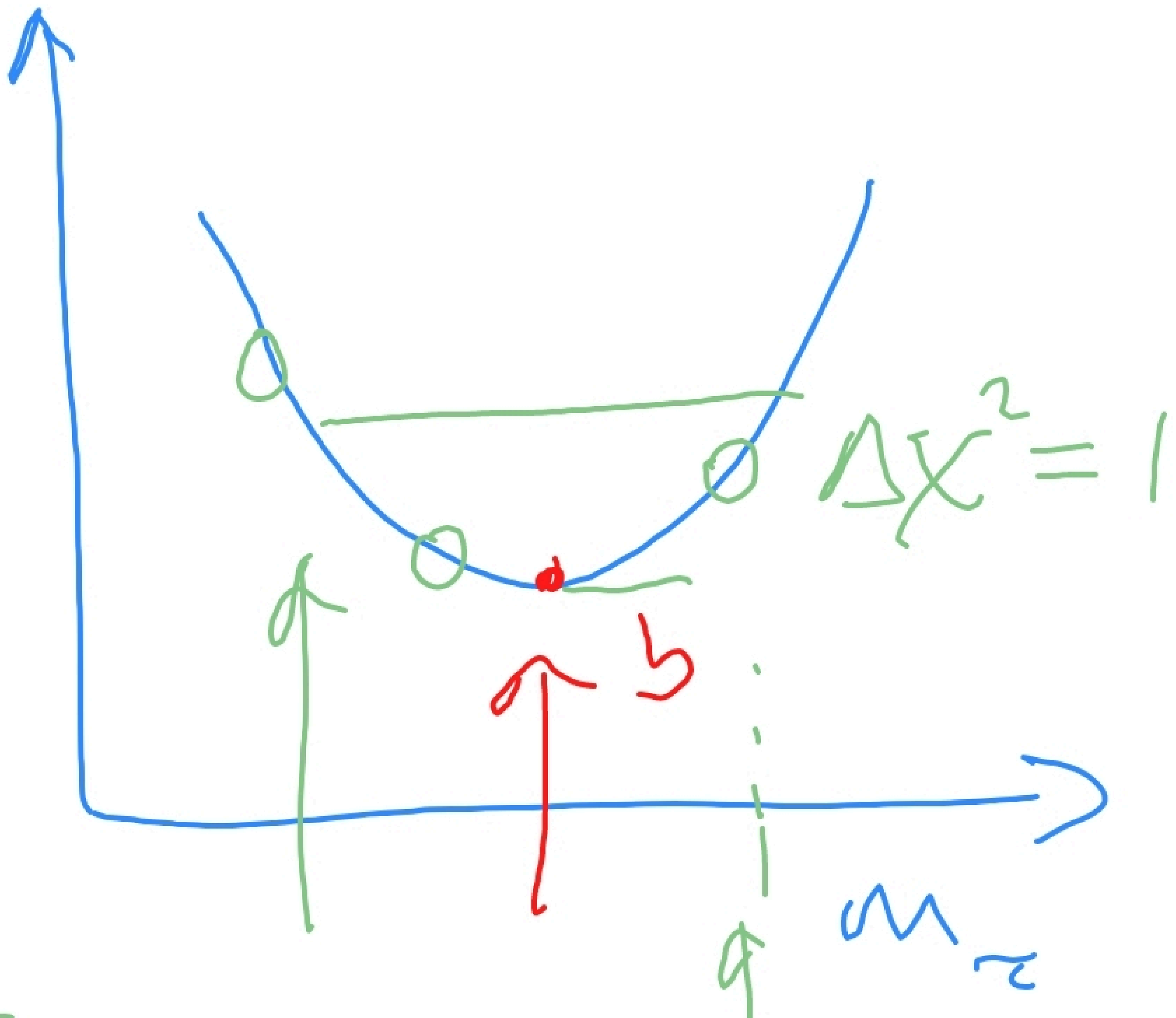
$$L(m_{\sim}) = \prod_{i=1}^{q} p(n_i ; \mu_i)$$

$\mathbb{E}(X) = \mu$

$\mathbb{V}(X) = \mathbb{E}((x-\mu)^2)$

$= \sigma^2 = \mu$

$\chi^2(m_\tau)$



$1.780 - 0.012$

$1.780 + 0.015$

$1.780^{+0.015}_{-0.012}$

$-2 \ln L$

$$\boxed{f(x) \simeq f(b) + \frac{1}{2} f''(b)(x-b)^2}$$