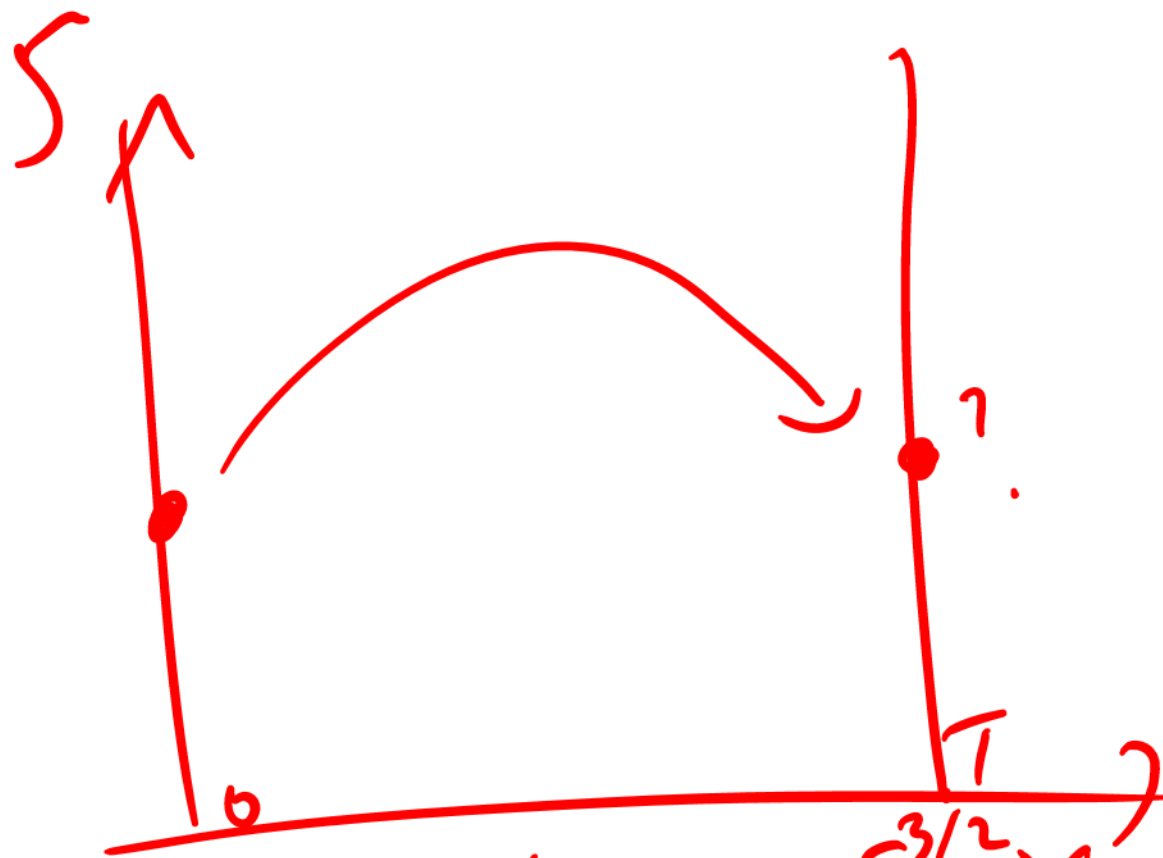


$$dS = rS dt + \sigma S dX$$

$$S_{i+1} = S_i + r S_i \Delta t + \sigma S_i \sqrt{\Delta t} \cdot \phi_i$$

Diagram illustrating the discrete-time approximation of the Black-Scholes model. The equation is shown with arrows indicating the mapping of terms from the continuous-time SDE above to the discrete-time formula. A large curved arrow points from the entire equation down to the graph below.

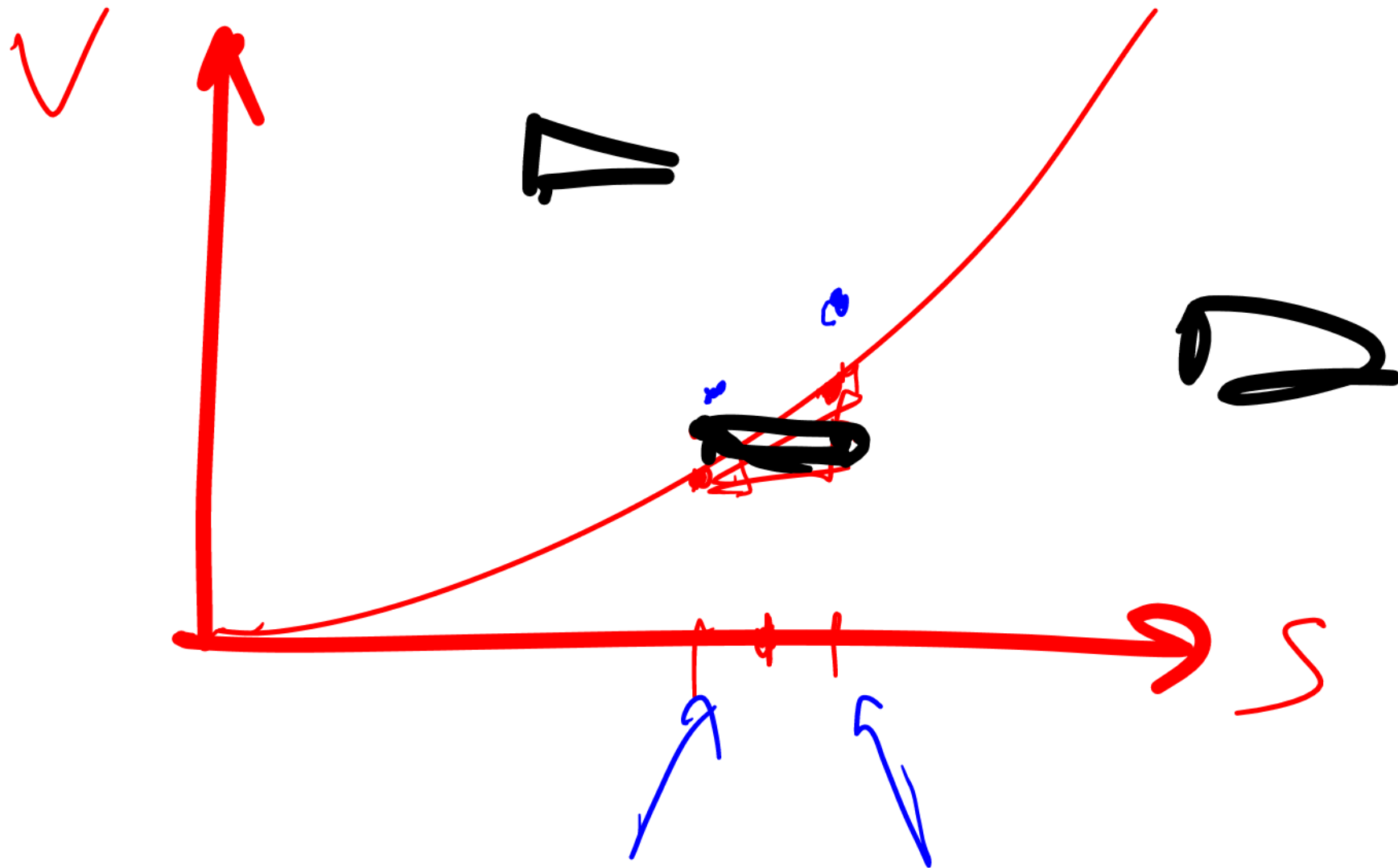




$$dS = rS dt + \sigma S^{3/2} dX$$

$$\int d(\ln S) = \int \left(r - \frac{1}{2}\sigma^2\right) dt + \sigma dX$$

$$\ln S(1) - \ln S(0) = \dots \phi$$



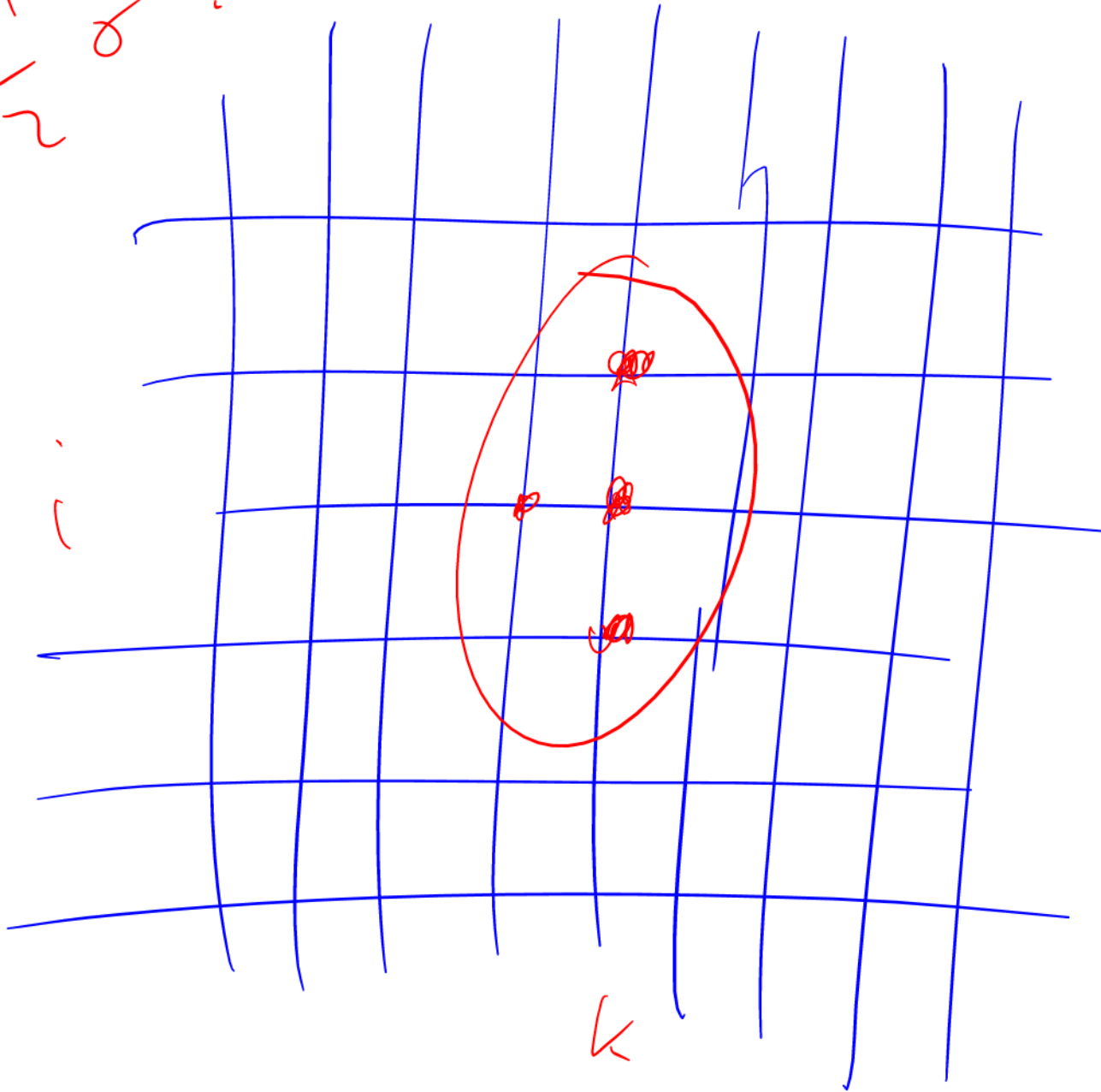
$$\frac{\partial V}{\partial \sigma} + \frac{1}{2} \sigma^2 S^2 \frac{\partial^2 V}{\partial \sigma^2} + r S \frac{\partial V}{\partial S} - r V = 0$$

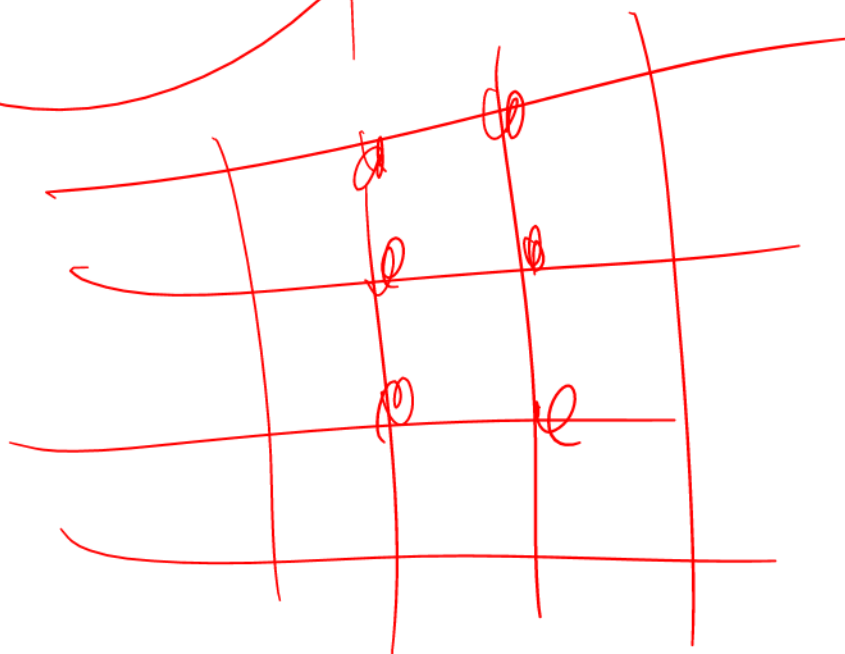
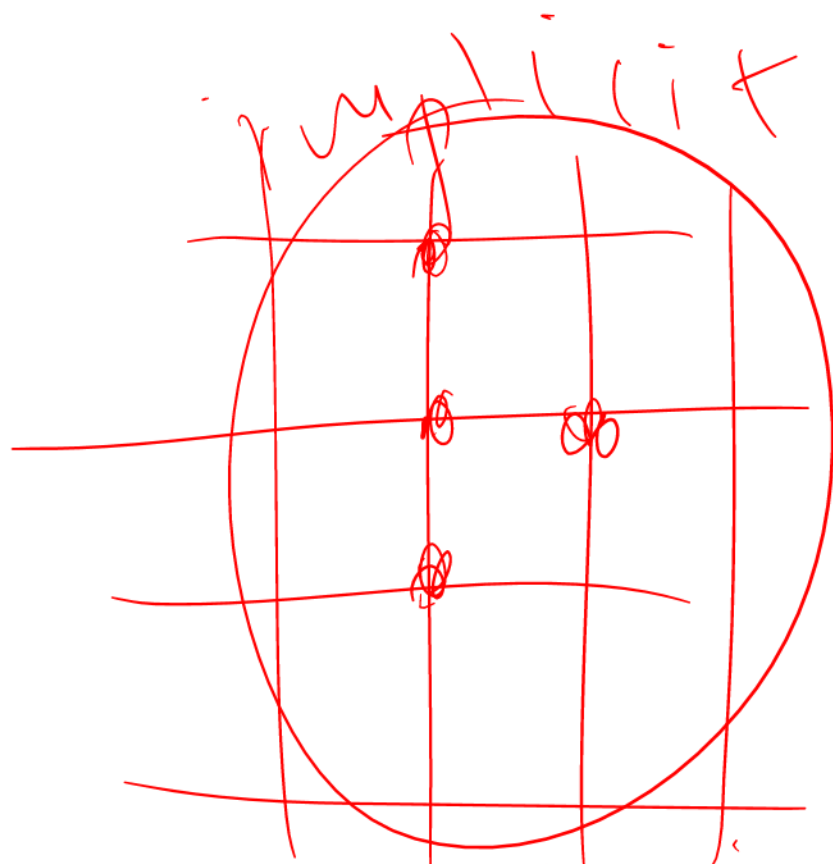
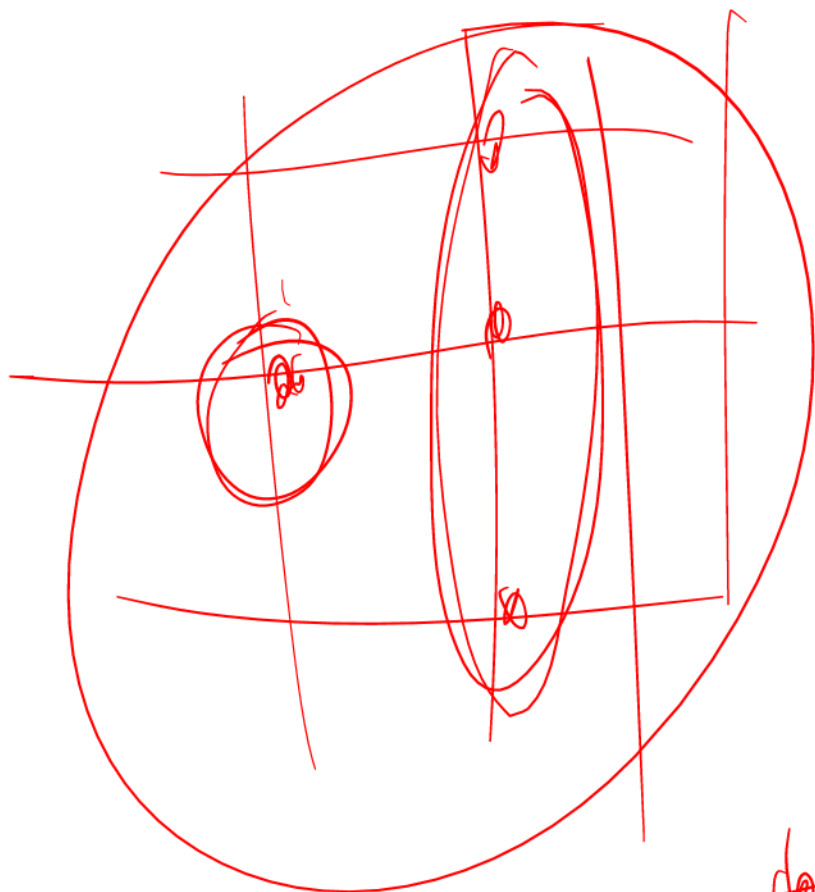
$$\frac{\partial^2 V}{\partial S \partial \sigma} = 0 \quad \Delta$$



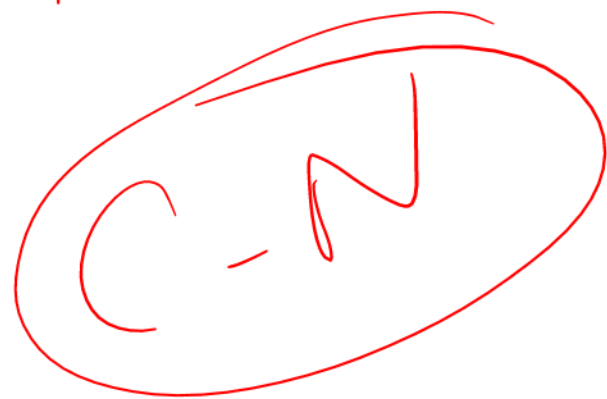
$$\frac{\partial V}{\partial k} + \frac{1}{2} \sigma \sim \dots = 0$$

$$V_i k$$





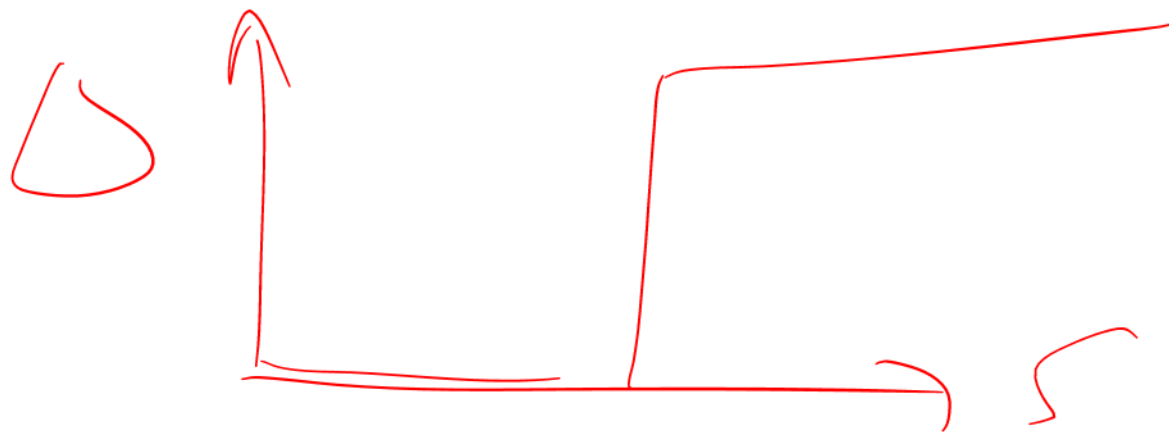
matrix

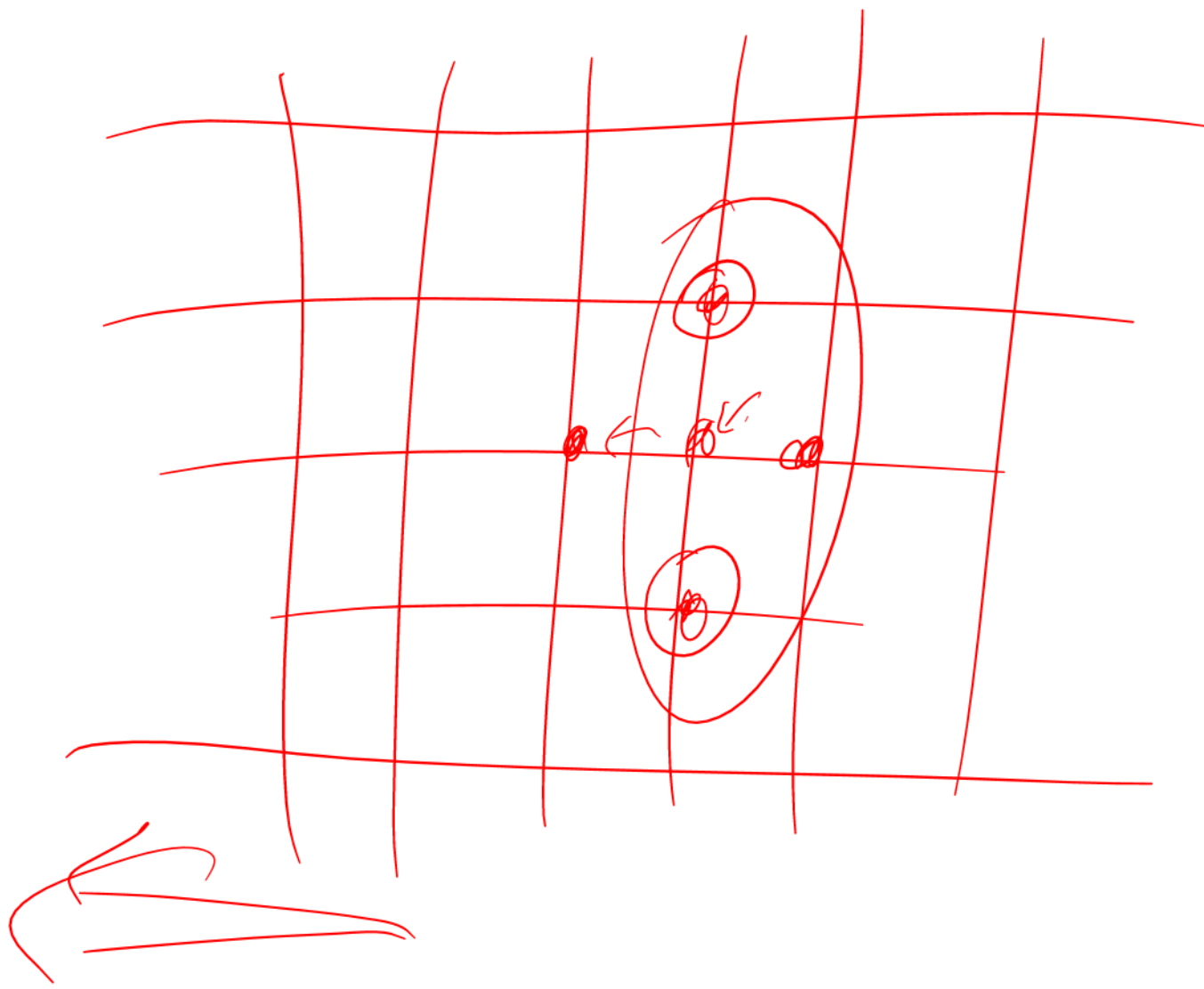




$$t = T$$

$$Q + \frac{1}{2} \sigma^2 S^2 \dots$$





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A