Chapter 0

Math Review

(I): College algebra and some basic calculus. For example:

(1) Relating graphs to equations (e.g., y=*a*x+b is a straight line).

(2) The derivative of $f(x) = ax^{\beta}$ is $\frac{\mathrm{df}}{\mathrm{dx}} = \beta a x^{\beta-1}$

(3) The derivative of $f(x) = a + bx - cx^2$ is $\frac{df}{dx} = b - 2cx.$

(II): Basic course in economics.

(1) Use graphs for economics analysis

(2) Basic optimization. For example:

If x=output, P=output price, a firm's cost function is $c(x) = ax^{\beta}$, $\beta > 1$ and the firm's profits are given by $\pi = Px - ax^{\beta}$, then a profit-maximizing firm will operate where $P = \beta a x^{\beta-1}$, implying input demand is:

$$x = \left(\frac{P}{a\beta}\right)^{\frac{1}{\beta-1}}$$

If you are a bit rusty, don't be intimidated. We will progress gradually with the mathematical analyisis.