Lab 1

June 24, 2024

1 Text 1

This is text. This is text.

2 Math 1

This is a function:

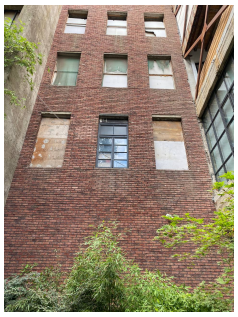
$$f(x) = x^2 - i + \pi \tag{1}$$

This is a system of equations:

$$\begin{cases} (\Pi_0 - \Delta_0 X_0)(1 + r) + \Delta_0 X_1(H) = V_1(H), \\ (\Pi_0 - \Delta_0 X_0)(1 + r) + \Delta_0 X_1(T) = V_1(T). \end{cases} \tag{2}$$

3 Image 1

An image of a brick wall taken in Tbilisi, Georgia



4 Text 2

Another random text.

Text. Text. Text. Text. Text.

Text. *Text.* TEXT.

5 Math 2

$$V_n(\omega_1\omega_2...\omega_n) = \frac{V_{n+1}(\omega_1\omega_2...\omega_n H)\widetilde{p} + V_{n+1}(\omega_1\omega_2...\omega_n T)\widetilde{q}}{1+r},$$

$$X_n(\omega_1\omega_2...\omega_n) = \frac{X_{n+1}(\omega_1\omega_2...\omega_n H)\widetilde{p} + X_{n+1}(\omega_1\omega_2...\omega_n T)\widetilde{q}}{1+r}.$$

From my paperwork on the Dirichlet Problem for the Upper Half-Space:

$$\begin{aligned} |u(z) - f(a)| &= \left| \int_{\mathbf{R}^{n-1}} (f(t) - f(a)) P_H(z,t) dt \right| \\ &\leq \int_{|t-a|\leq\delta} |f(t) - f(a)| P_H(z,t) dt \\ &\quad + 2\|f\|_\infty \int_{|t-a|>\delta} P_H(z,t) dt \end{aligned}$$

for every $z \in H$. If δ is small enough, then integral on $\{|t-a| \leq \delta\}$ is small too due to continuity f in the point a and due to 7.1. The integral on $\{|t-a| > \delta\}$ converges to 0 when $z \to a$ due to the Proposition 7.2.