$$f(x) = \begin{cases} 2x & (0 \le x \le \frac{1}{3}) \\ \frac{3-(2-3x)^2}{3} & (\frac{1}{3} \le x \le \frac{2}{3}) \\ 1 & (\frac{2}{3} \le x \le 1) \end{cases} \tag{1}$$