1. Fin the domain of the following function.

$$f(x) = \ln(\frac{\sqrt{x^2-4}}{x+6}) \tag{1}$$

2. The position of a particle as a function of time is given by the relation

$$x(t) = t^2 + 4t - 1 \tag{2}$$

Fix the point $p = (-1, -4)$ on this function. Find the general equation of secant line passing through p and an arbitrary point of x(t).

3. Find the limit.

$$\lim_{x\to 3} \frac{\sqrt{x^2-3}-\sqrt{6}}{x^2-2x-3} \tag{3}$$

hint: Rationalize the numerator!