Use the following parametric curves to answer each question

$$x=t^2+3t$$
, $y=t^2-5t+6$

1. Find
$$\frac{d^2y}{dx^2}$$

2. Find the leftmost point on the parametric curve from $-2 \le t \le 0$

3. Find the points on the curve where the tangent is horizontal or vertical.

4. Find the length of the arc on the following interval $0 \le t \le 2$