1.(a)

By the equation from the lab note and the website (http://mathworld.wolfram.com/Ellipse.html), we have

$$l_1 = a(1-e)$$

$$l_2 = a(1+e)$$

$$T = \frac{2\pi ab}{l_1 v_1}$$

$$e = \sqrt{1 - \frac{b^2}{a^2}}$$

$$where\ l_1 v_1 = l_2 v_2\ are\ the\ position\ and\ velocity\ at\ perihelion\ and\ ahelion$$

Base on the equation from website provided , we have

$$a, b = \sqrt{\frac{2(AF^2 + CD^2 + GB^2 - 2BDF - ACG)}{(B^2 - AC)\left(\pm\sqrt{(A-C)^2 + 4B^2} - (A+C)\right)}}$$

Since a, b are semi-major and semi-minor, can derive perihelion, aphelion, period and eccentricity.

1(c)

By our calculation, we get T=101.34 years. Comparing with the website of different comet, the closest one is named CSS with period of 101.64 years. Its last perihelion was 11th of May, 2019.