Determine the answers to the following questions in single elliptic and double elliptic geometry.

1.   Given distinct points p and q, how many lines are on p and q?

2.   How long is a line?

3.   If l and m are lines, do they intersect? How often?

4.   In Euclidean geometry, a line divides all of space into two regions. How many regions does a line divide space into in single and double elliptic geometry?

5.   Can a perpendicular to a line l always be drawn through a point p if p is on l? If a perpendicular exists, is it unique?

6.   Can a perpendicular to a line l always be drawn through a point p if p is not on l? If a perpendicular exists, is it unique?

7.   If k is a line and m and n are lines perpendicular to k, what can be said about the point of intersection of m and n?

8.   Can two lines have a common perpendicular? Can two lines have more than one common perpendicular? (Also, answer this question for Euclidean geometry).

9.   Given a point p, a *polar* of p is a line k such that every linethrough p is perpendicular to k. Does every point p admit a polar? How many polars can a point p have?

10.   What can be said about the angle sum of a triangle?

11.   Euclid I-16 states that the exterior angle of a triangle is greater than either of the opposite interior angles. Show that Euclid I-16 is false in single and double elliptic geometry.