Alphageometry Syntax

1. Points and Segments

Points are denoted by single lowercase letters, e.g., a, b, c. Segments are defined using the `segment` keyword, e.g., $ab = segment\,ab$.

2. Lines and Circles

Lines are defined using the `on_line` keyword, e.g., $p = on\_line\,pab$. Circles are defined using the `on_circle` keyword, e.g., $o = circle\,oabc$.

3. Parallel and Perpendicular Lines

Parallel lines are represented using the `para` or `on_pline` keywords, e.g., $g = on\_pline\,gabc$. Perpendicular lines are represented using the `perp` keyword, e.g., $k = on\_line\,kja, on\_circle\,kos?perp\,kto1t$.

4. Midpoints and Reflections

Midpoints are defined using the `midpoint` keyword, e.g., $o = midpoint\,obc$. Reflections are represented using the `reflect` keyword, e.g., $pa = reflect\,papbc$.

5. Angles

Equal angles are represented using the `eqangle` keyword, e.g., $a = eqangle\,bte$. Angle bisectors are represented using the `angle_bisector` keyword, e.g., $o = angle\_bisector\,adp$.

6. Equality and Congruence

Equality between angles is represented using the `eqangle3` keyword, e.g., $p1 = on\_line\,pb1, eqangle3\,pcabc$. Congruence between segments is represented using the `cong` keyword, e.g., $epeq$.

7. Parallelism and Concurrence

Parallelism is represented using the `para` keyword, e.g., $g = on\_pline\,gabc$. Concurrence is represented using the `cc_tangent` keyword, e.g., $qtps = cc\_tangent\,qtpsi1f1i2f2$.

8. Geometry Elements

Circumcenter, Orthocenter, Incenter, Excenter, etc., are denoted by single uppercase letters, e.g., O, H, I.

9. Special Points and Elements

Special points, like feet of altitudes, midpoints, etc., are named using descriptive terms, e.g., T_A, M_A.

10. Constructions

Reflections, angle bisectors, etc., are often used in constructions.