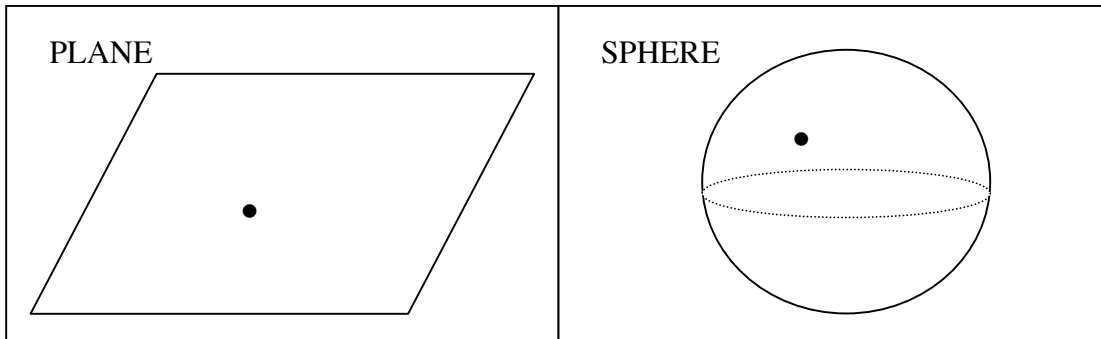


Geometric Ideas – Teacher Copy

Test the following ideas for plane and sphere surfaces. Sketch an example on each diagram. Indicate if the concept is not possible.

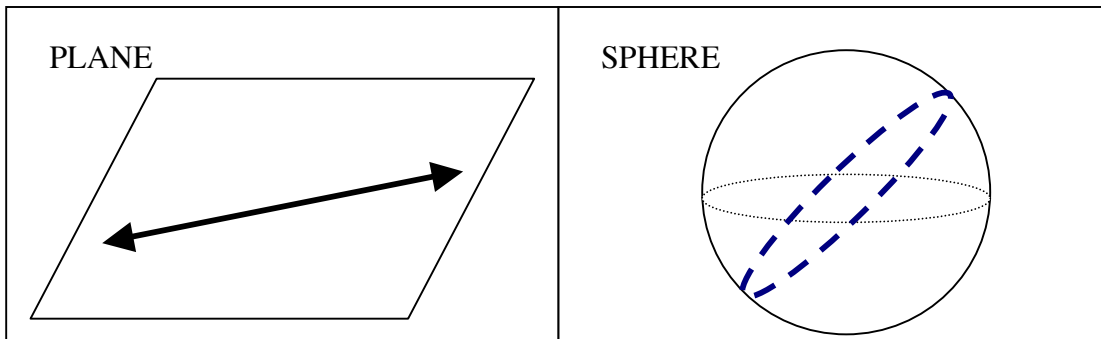
1. Point: an exact location with no dimension



True

True

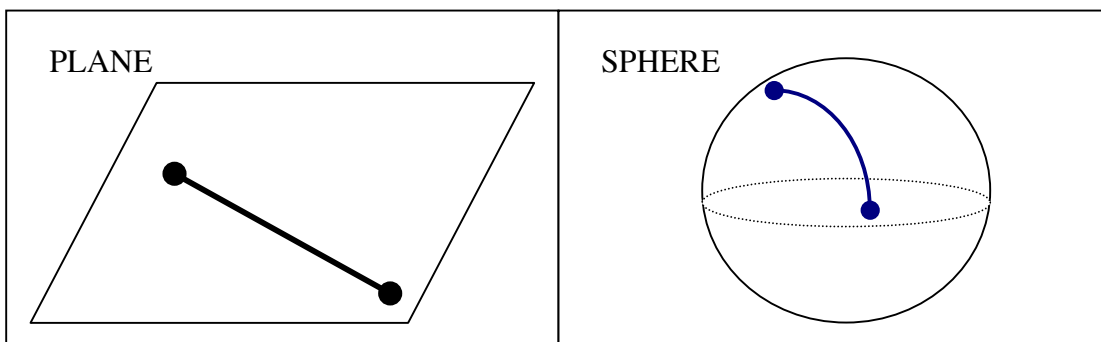
2. Line: a straight series of points that extends infinitely in opposite directions.



True

True: see Great Circle

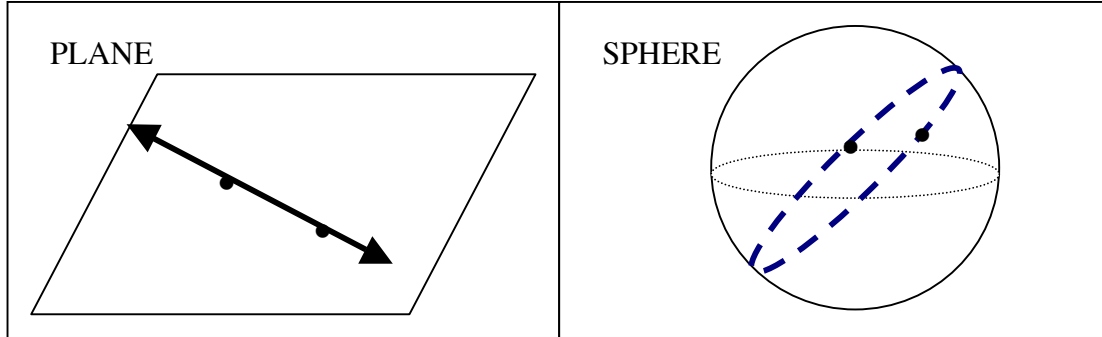
3. Line Segment: part of a line with two endpoints.



True

True: see Geodesic

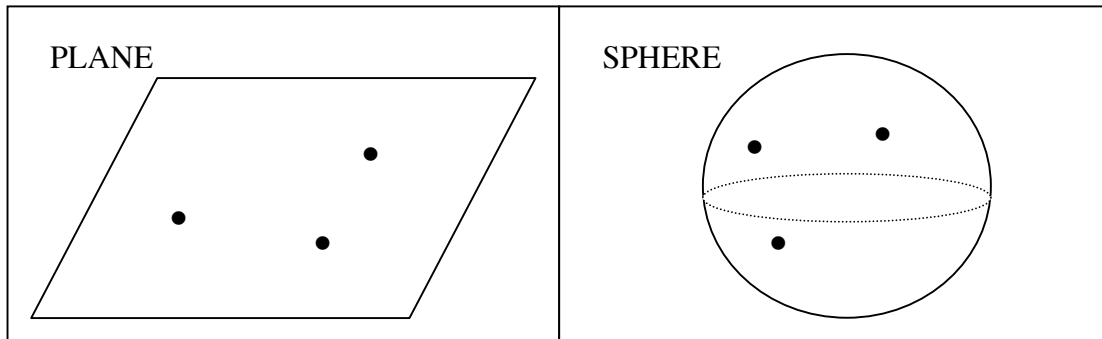
4. Through any two points there is one and only one line possible.



True

True for non-polar points; False for diametrically opposite "polar" points

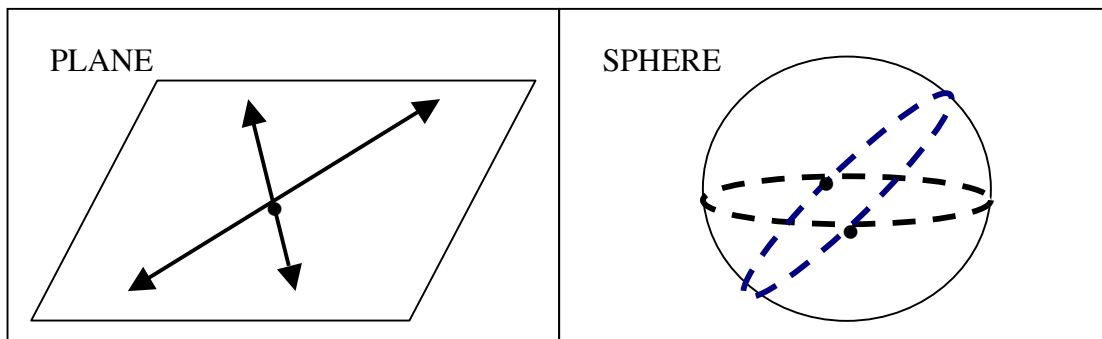
5. Through any three non-collinear points, there is one and only one plane possible.



True

Does not apply

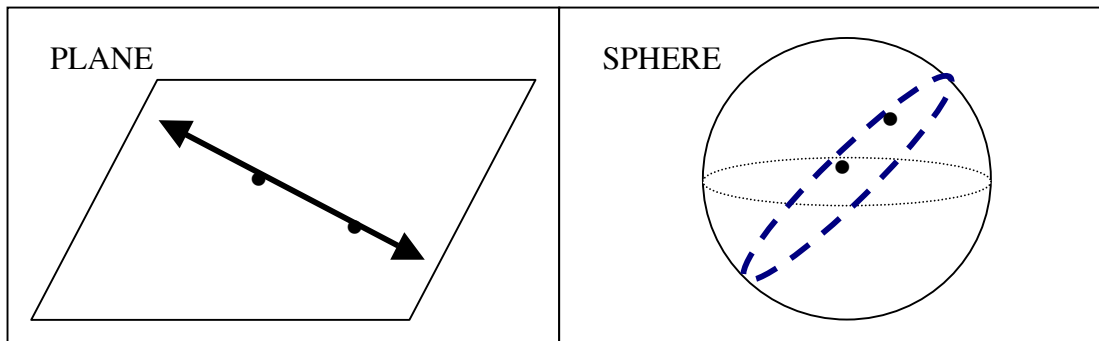
6. Two lines intersect in one and only one point.



True

False for two Great Circles

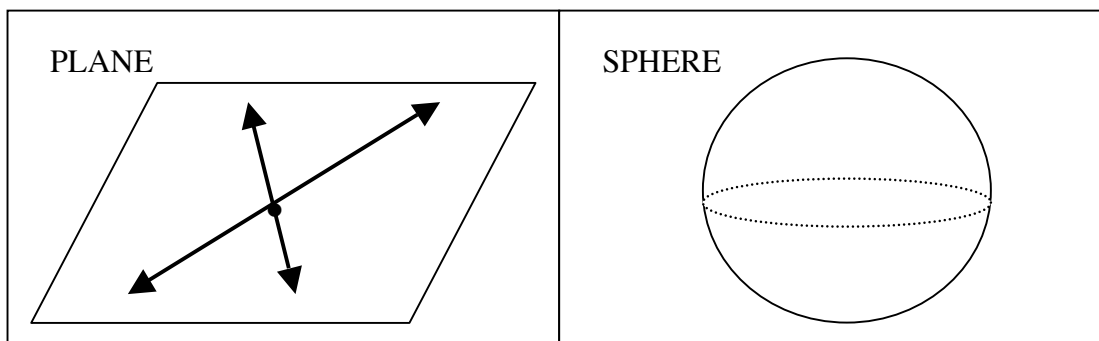
7. On a line, there is a unique distance between two points



True

False

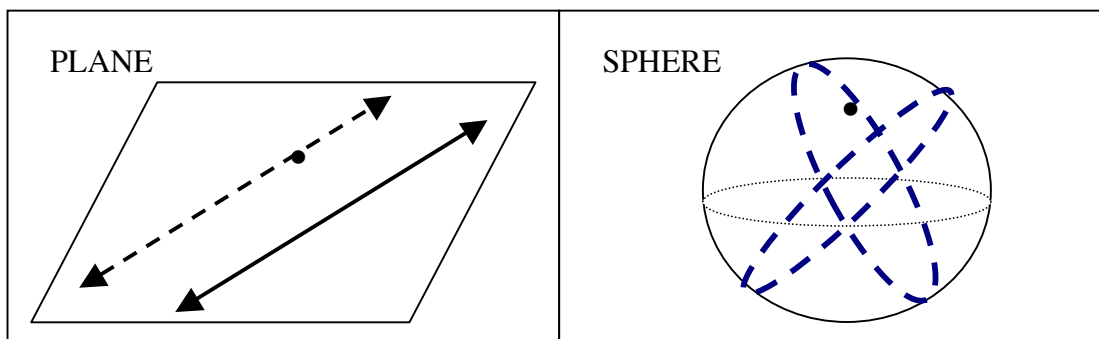
8. Two lines that intersect lie on the same plane



True

Does not apply

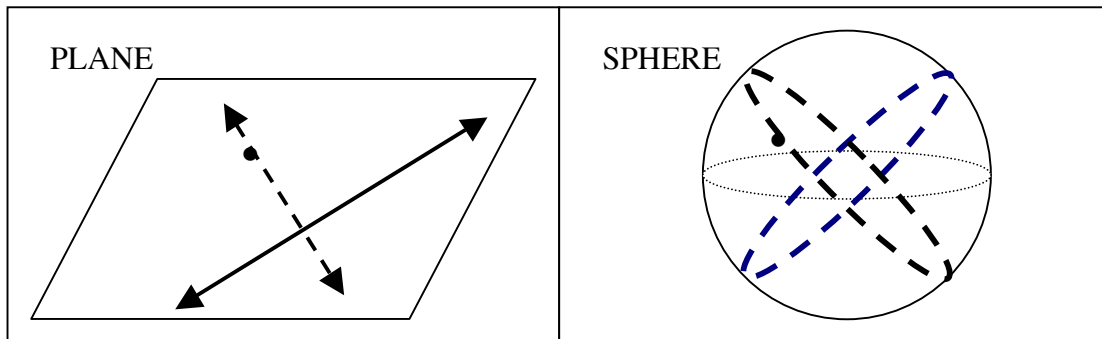
9. Through a point not on a line, exactly one parallel line is possible.



True

False; through a point not on a Great Circle any other great circle will intersect

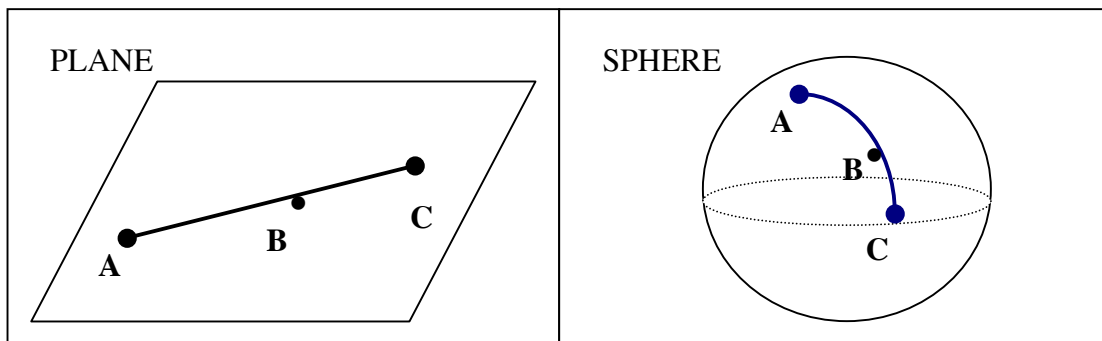
10. Through a point not on a line, exactly one perpendicular line can be drawn.



True

True and False

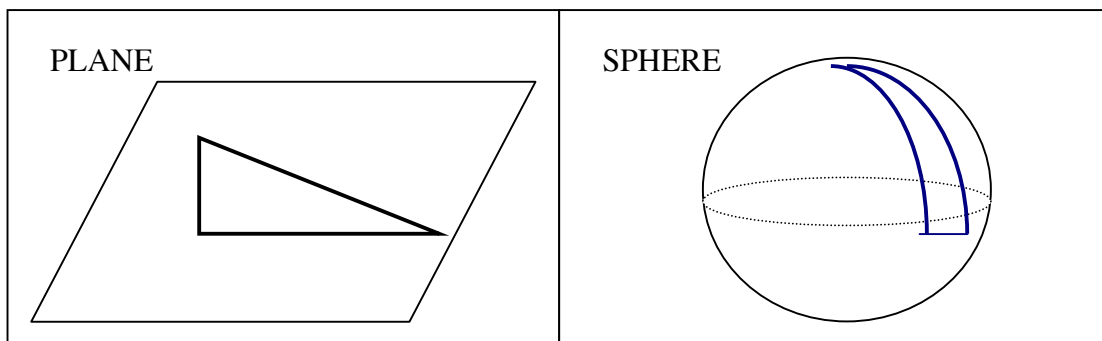
11. If point B is between points A and C, then segments $AB + BC = AC$



True

True

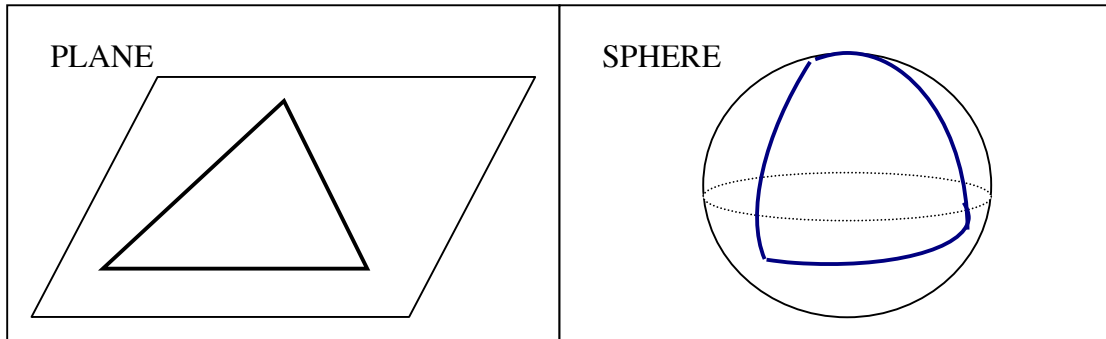
12. In a triangle, there can be one and only one right angle or obtuse angle.



True

False

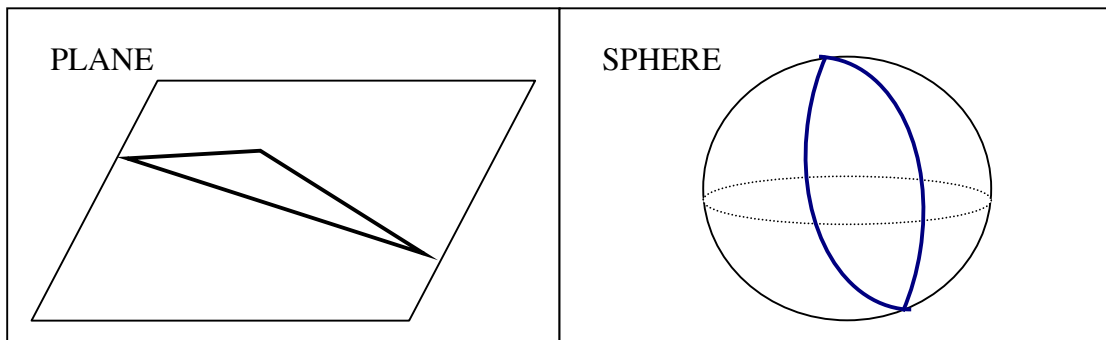
13. The sum of the angles of a triangle is 180° .



True

False

14. Polygon: a closed plane figure formed by 3 or more line segments.



True

False: see Lune