

EAS 233 GEOLOGIC STRUCTURES AND MAPS

More Constructions on the stereographic projection

Line of intersection of two planes

- a) Plot the two intersecting planes as great circles on the overlay.
- b) The great circles intersect at a point, which represents the line of intersection of the planes. Determine its trend and plunge.

Plane perpendicular to two planes

To find the plane perpendicular to two other planes, we first find their line of intersection, and then use it as the pole to a third plane.

- a) Repeat step a above
- b) Repeat step b above, but instead of determining the trend and plunge, move the point of intersection to the straight radius on the left hand side of the net.
- c) Count the number of degrees outward from the centre of the net, along the left straight radius, to this point.
- d) Count the same number of degrees inward from the primitive along the right straight radius, and trace the great circle that passes through this point.

Angle between two planes, first method

- a-d) Find the great circle perpendicular to the two planes as above.
- e) Locate the point where each original plane intersects the new great circle.
- f) Count degrees along the new great circle between these two points.

Angle between two planes, second method

- a) Plot both planes as poles.
- b) Rotate the net so that both poles lie on a single great circle.
- c) Count degrees between the two poles.

Important note: there are always two possible answers to the angle between two planes. The two angles will add up to 180° . The only way to figure out which one is the right answer is to visualize the problem in 3-D. In general, the first method is a little easier to visualize, though it involves more steps.