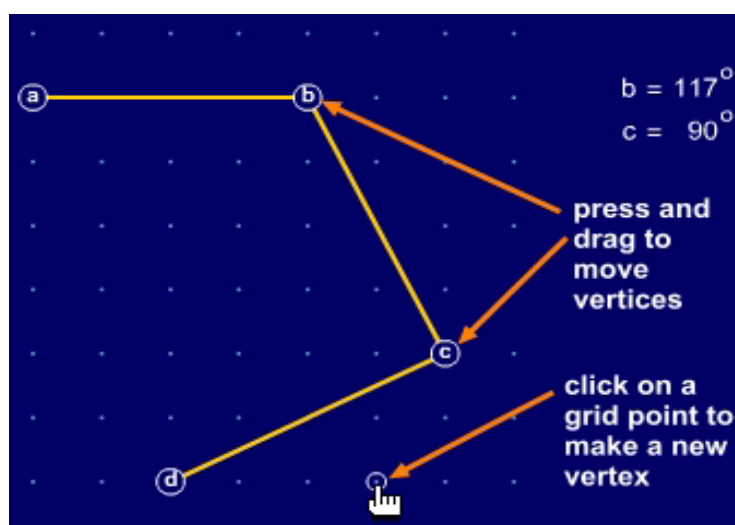# Fixing points

This ITP allows you to create a number of connected vertices on a grid. The grid size can be changed, and the grids hidden and revealed. As each vertex is created it is labelled and joined to the previous one. To close a shape select a vertex at any point and drag it onto the required point to create a closed shape. Once a shape has been created, its vertices can be dragged to new positions to create new shapes. Lengths of sides can be measured using a ruler.

The angles created at vertices can be measured using the protractor and their values can be displayed or hidden. For reflex interior angles the value of the exterior angle is shown. You can use the ITP to demonstrate and explore properties of shapes, such as the internal angles of different pentagons and the properties of opposite sides of various parallelograms in different orientations.

Select a grid size from 3x3, 4x4, 5x5 and 10x10. The grid is initially set to 4x4.	Hide or show the grid points.
Set the 'snap to grid' feature, a vertex will snap to the nearest point when released.	Show or hide the angles display. Click on the ? symbol adjacent to an angle label to show the angle's value.
Show or hide the protractor, which can be moved over the angles in the shapes on the screen.	Show or hide the ruler, which can be moved over the sides of the shapes on the screen.
Lock vertices so that they cannot be moved.	Show or hide the grid lines.