**3F More Loci**

1. The tangent to the ellipse with equation at the point crosses the -axis at and the -axis at .

Find an equation for the locus of the mid-point of as moves around the ellipse.

1. The normal at and the normal at to the parabola with equation meet at .
2. Find the coordinates of .

The chord passes through the focus of the parabola.

1. Show that
2. Show that the locus of is a parabola with equation