Ch.5/6 Calculator

**1.** (a) Express *f*(*x*) *= x*2 – 8*x* + 24 in the form *f*(*x*) = (*x* – *h*)2 + *k*, where *h* and *k* are to be determined.

(b) Hence, or otherwise, write down the coordinates of the vertex of the parabola with equation *y* =  *x*2 – 8*x* + 24.

**2.** Find the equation of the perpendicular bisector for the line segment joining the points (1 , 5) to (7 , 3).

**3.** The quadratic function *f* is defined by *f*(*x*) = 3*x*2 – 18*x* + 14.

(a) Write *f* in the form *f*(*x*) = 3(*x* *–* *h*)2 – *k*.

(b) The graph of *f* is translated 3 units in the positive *x*-direction and 5 units in the positive *y*-direction. Find the function *g* for the translated graph, giving your answer in the form *g*(*x*) = 3(*x* – *p*)2 + *q*.

4. 