Conic section

1. Reduce the following equations to their standard forms:
   (i) $x^2 - 6xy + 9y^2 - 2x - 3y + 1 = 0$
   (ii) $x^2 - 4xy + y^2 + 8x + 2y - 5 = 0$
   (iii) $4x^2 - 24xy - 6y^2 + 4x - 12y + 1 = 0$
   (iv) $9x^2 - 4xy + 6y^2 - 10x - 7 = 0$
   (v) $x^2 - 4xy - 2y^2 + 10x + 4y = 0$
   (vi) $x^2 + 4y^2 - 2x - 16y + 1 = 0$
   (vii) $9x^2 + 24xy + 16y^2 + 22x + 46y + 9 = 0$
   (viii) $3x^2 + 2xy + 3y^2 + 2x - 6y + \frac{25}{2} = 0.$
2. Find the centre of the following conics:
   (i) $x^2 - 4xy + y^2 + 8x + 2y - 5 = 0$
   (ii) $x^2 - 2xy + 2y^2 - 3x + 7y - 1 = 0$
   (iii) $3x^2 - 7xy - 6y^2 + 3x - 9y + 5 = 0.$