QUADRATIC SIMULTANEOUS EQUATIONS

Task 1 – Solve each of the following equations. You must show clear algebraic working. Do not use trial and error.

1) $y = x^2 + 2$
$y = 3x$

2) $y = x^2$
$y = 10 - 3x$

3) $y = 5 + x^2$
$y = x + 11$

4) $y = x - 12$
$y = x^2 + 9x$

5) $y = x^2 + 7x + 6$
$y = 2x + 2$

6) $x^2 + y^2 = 25$
$y = x + 1$

7) $xy = 12$
$y = x - 1$

8) $x^2 + y^2 = 29$
$y = 2x + 1$

9) $y = x^2 + 2x + 1$
$y = x + 1$

10) $x + y = 5$
$x^2 + y^2 = 17$

11) Give your solutions to 3 significant figures.
$xy = 8$
$y = 2x - 2$

12) Give your solutions to 3 significant figures.
$y = x^2 + x$
$y = 3x + 4$

Challenge

13) A curve C has equation $y = x^2 - 2$. A line L has equation $x + y = 4$. The line intersects the curve at two points.

Work out the midpoint of the two points of intersection.

14) A curve C has equation $y = 2x - x^2$. A line L has equation $x - y = 2$. The line intersects the curve at two points.

Work out the distance between the two points of intersection. Give your answer as an exact value.