

### Simultaneous Equations and Quadratics – www.m4ths.com

1. Solve the quadratic equation  $12x^2 + 17x - 5 = 0$  by factorisation.
2. Solve the quadratic equation  $x^2 + 4x - 9 = 0$  by completing the square, giving your answers in surd form.
3. Solve the quadratic equation  $5x^2 - 4x = 32$  using the quadratic equation.
4. Express  $x^2 - 6x + 2$  in the form  $(x + a)^2 + b$
5. Express  $-x^2 + 12x - 8$  in the form  $-(x + a)^2 + b$
6. Express  $6x^2 - 5x + 1$  in the form  $p(x + q)^2 + r$
7. Solve the simultaneous equations  $x - y = 5$  and  $x^2 - 3xy = 22$
8. Solve the simultaneous equations  $y = 5x$  and  $x^2 + 6 = y$
9. Solve the simultaneous equations  $3x + 4y = 23$  and  $x^2 + y^2 = 49.25$
10. The line with equation  $7x + 5y = 0$  and the curve with equation  $x^2 - xy = 60$  meeting at the points A & B.
  - a. Find the coordinates of A and B
  - b. Find the distance between the points A and B
  - c. Point C has coordinates  $(0, -7)$ . Find the area of  $\triangle ABC$ . A sketch may help 😊

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