

Section 1: Quadratic graphs and equations

Crucial points

- 1. Make sure that you can multiply out and factorise confidently**
These algebraic skills are vital in many areas of mathematics at this level. Practise them until you can do them confidently.
- 2. Remember the relationship between the solutions of a quadratic equation and the corresponding quadratic graph**
The solutions of a quadratic equation tell you where the corresponding quadratic graph crosses the x -axis. This is very useful in sketching quadratic graphs.
- 3. Use completing the square to find the turning point (vertex)**
Remember that you can find the maximum or minimum point of a quadratic from its completed square form.
- 4. Recognise the nature of the vertex**
Make sure that you know how to tell whether a quadratic graph has a maximum or a minimum point.
- 5. Be careful when the coefficient of x^2 is not 1**
When completing the square for a quadratic with a coefficient of x^2 which is not 1, make sure that you take out the coefficient of x^2 as a factor first.
- 6. When completing the square, be careful with signs**
Be especially careful when dealing with expressions where the coefficient of x^2 is negative.
- 7. Check your answers**
After completing the square, you can always check by multiplying out and making sure that you get the original quadratic expression.
- 8. When solving problems, make sure your answer makes sense**
Always look at your answers to problems in the light of the original question. If there are two solutions, do they both make sense, or should one be discarded? Think carefully about the meaning of a negative solution, since this may or may not be a valid solution.