Year 9 | Algebra

Quadratic graphs and roots

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

- Connect quadratic factors, roots, turning points and changes in parameters.
- Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A quadratic graph is a parabola. Roots are x-values where y=0. The null factor law applies when a product equals zero: at least one factor must be zero.

The form $y=a(x-h)^2+k$ shows turning point (h, k). Changing h and k shifts the graph; changing a affects width and orientation. Use software to test these patterns.

Worked example

Solve $x^2-7x+12=0$.

Factor to $(x-3)(x-4)=0$.

Set each factor to zero.

Answer: x=3 or 4

Try it yourself

Name: _____ Date: _____

1. Solve $(x-2)(x+5)=0$.

2. State turning point of $y=(x-3)^2+2$.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. x=2 or -5

Use the null factor law.

2. (3,2)

Read h=3, k=2.

Curriculum reference: VC2M9A05; VC2M9A07

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