

Exercise walk-through

2.2

Quadratic

Pearson Edexcel · International GCSE · Mathematics A

Exercises 2.1·2.3

2.1 (Foundation) Find the smaller root of $x^2-10x+21=0$.

2.2 (Foundation) Find the larger root of $x^2-10x+21=0$.

2.3 (Foundation) Find $(5-3)(5-7)$.

Exercises 2.1·2.3

2.1 (Foundation) Find the smaller root of $x^2-10x+21=0$.

2.1 Factorise to $(x-3)(x-7)=0$. The smaller root is 3.

2.2 (Foundation) Find the larger root of $x^2-10x+21=0$.

2.2 The factorised roots are 3 and 7; the larger is 7.

2.3 (Foundation) Find $(5-3)(5-7)$.

2.3 Substitute 5: $(5-3)(5-7)=2 \times (-2)=-4$.

Exercises 2.4·3.1

2.4 (Higher) Find the discriminant of $x^2-6x+9=0$.

2.5 (Higher) Find the maximum value of $x(10-x)$.

3 Exam-style questions

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: A positive discriminant means that a quadratic has no real roots.

Exercises 2.4·3.1

2.4 (Higher) Find the discriminant of $x^2-6x+9=0$.

2.4 The discriminant is $(-6)^2-4\times 1\times 9=0$.

2.5 (Higher) Find the maximum value of $x(10-x)$.

3 Exam-style questions

2.5 Complete the square: $x(10-x)=25-(x-5)^2$. The maximum is 25.

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: A positive discriminant means that a quadratic has no real roots.

3.1 False. $x^2-1=0$ has discriminant $4>0$ and two distinct real roots, -1 and 1 . A negative discriminant means no real roots.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.