

Year 11 · 11.2 Transformation of Functions and Algebra — Learning objectives

What students should be able to do by the end of this unit.

Functions

1. I can understand the definition of a function and a relation; use domain and range.
2. I can apply the vertical line test to determine if a relation is a function.
3. I can use function notation.
4. I can determine inverse functions and use composite functions (fog notation). (extension)
5. I can explore absolute value function and square root function. (enrichment)
6. I can explore Euler's number e . (enrichment)

Quadratic Functions

7. I can use vertex form of quadratic equations.
8. I can factorise quadratic expressions and solve quadratic equations.
9. I can complete the square and convert between forms of quadratic equations.
10. I can use GDC to explore quadratic features: intercepts, axis of symmetry, vertex, and optimisation.
11. I can solve real-world quadratic modelling problems.
12. I can introduce transformations via vertex form.
13. I can use the discriminant to determine the nature of roots. (extension)

Transformations

14. I can perform horizontal and vertical translations, stretches and reflections — both graphically and algebraically.

Exponential and Logarithmic Functions

15. I can apply index laws for rational indices. (extension)
 16. I can understand the shape of an exponential function and identify key intercepts and asymptote.
 17. I can explore exponential graph transformations.
 18. I can solve real-life problems involving exponential growth, decay, depreciation and compound interest; interpret contextual meaning of parameters.
 19. I can use technology to solve basic exponential equations.
 20. I can explore logarithms: log equations, the log function, and log laws. (extension)
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