

Functions: worked examples

HSC Mathematics Advanced

These examples show assessable skills, not an official HSC topic weighting or prediction. The 2024 NSW syllabuses have their first HSC examination in 2027; students sitting the 2026 HSC continue under the applicable 2017 syllabus.

Worked example 1 | 2 marks

Catalog reference: adv_cssa24_linear_equation | seed 41001 | mapping adv-f1-1

Linear equation

Solve $10 - x = (2x)/(2)$.

(a) Find x . [2 marks]

Answer: 5

Clear Denominator: 20

Solve Linear Equation: 5

Worked example 2 | 2 marks

Catalog reference: adv_nsb20_rationalise_denominator | seed 41001 | mapping adv-f1-1

Rationalising a surd denominator

Rationalise $(6)/(3 - \sqrt{2})$.

(a) Give the exact simplified result. [2 marks]

Answer: $(18 + (6\sqrt{2}))/7$

Multiply By Conjugate: $n(3 + \sqrt{2})/7$

Simplify: $(18 + (6\sqrt{2}))/7$

Worked example 3 | 2 marks

Catalog reference: adv_pem23_q11c_break_even | seed 41001 | mapping adv-f1-2

Backpack break-even point

A business has income $\$240x$ and cost $\$90x + 13500$. Find the number of backpacks required to break even.

(a) Find the break-even quantity. [2 marks]

Answer: 90

Equate Income And Cost: $\$240x = 90x + 13500$.

Solve Linear Equation: $x = 90$.

Source and methodology

Examples are deterministic curriq catalog generations from existing QDSL archetypes at the published fixed seed. The generator copies only student-facing prompts, mark allocations, topic mappings, display tables or options, checked answers and marking-path results into this resource.

Official syllabus source:

<https://curriculum.nsw.edu.au/learning-areas/mathematics/mathematics-advanced-11-12-2024/overview/course>

Teacher verification note: check the mathematics, notation, permitted technology and syllabus fit for your cohort before classroom or assessment use.