



Australian Government

FSKNUM035 Use algebraic and graphical techniques to analyse mathematical problems for work

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Application

This unit describes the skills and knowledge to use a range of algebraic and graphical techniques to analyse and solve mathematical problems. It includes extracting and analysing mathematical information, analysing and solving equations, and communicating the mathematical information.

An individual performing these tasks works autonomously and accesses and evaluates support from a broad range of sources as needed.

This unit applies to individuals who use, or are preparing to use, numeracy skills to complete workplace activities. This includes existing workers and individuals preparing for employment through vocational education and training. This unit should be integrated and contextualised with vocational training to support achievement of vocational competency.

This unit is aligned to, but does not fully address, at the Australian Core Skills Framework (ACSF) numeracy core skill indicators .09, .10 and .11 at level 5 in the workplace and employment domain of communication.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Numeracy

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Extract and analyse mathematical information	1.1 Extract highly embedded algebraic and mathematical information from a broad range of highly complex workplace texts and tasks

Element	Performance Criteria
	1.2 Analyse algebraic and mathematical information required to complete workplace task 1.3 Incorporate information from other sources to inform and support analysis of the extracted information, where necessary
2. Analyse and solve equations for workplace tasks	2.1 Select method of solution from an expanded range of highly developed mathematical problem solving strategies and processes to complete workplace task 2.2 Estimate outcome of analysis related to using specialised mathematical problem solving strategies and processes to complete workplace task 2.3 Solve workplace problems using graphical methods to find solutions to linear and non-linear equations 2.4 Solve workplace problems using algebraic processes to find solutions to linear and non-linear equations 2.5 Check outcomes and critically review mathematics used and real-world implications of results using developed estimation and evaluation techniques
3. Communicate mathematical information	3.1 Use formal and specialised written mathematical representation and symbolism to document, interpret and communicate mathematical thinking, problem solving process, outcomes and implications 3.2 Use specialised mathematical and general language to discuss, explain and interpret the mathematical processes, results and implications

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Mapping Information

Supersedes and is equivalent to FSKNUM35 Use algebraic and graphical techniques to analyse mathematical problems for work.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKNUM035 Use algebraic and graphical techniques to analyse mathematical problems for work

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- perform a broad range of multi-step mathematical problem solving processes using algebraic and graphical techniques to complete a workplace task, including at least two of the following:
 - solving linear equations using algebraic processes and graphical techniques
 - solving quadratic equations using the quadratic formula and factorising methods
 - solving simultaneous equations using algebraic and graphical solutions
- make estimations to check problem solving outcomes and determine appropriate accuracy required for above workplace task
- critically review above mathematical processes and outcomes obtained, and evaluate real-world implications.
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Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- range of methods to expand and factorise algebraic expressions and solve equations, including the application of the quadratic formula
- techniques to draw Cartesian graphs of relevant linear and non-linear equations
- key features of linear and non-linear equations and their graphs including the role of variables and constants
- real-life situations represented by parabolas, hyperbolas and exponential graphs
- real-life situations represented by relevant simultaneous equations
- purpose and use of relevant technology such as CAS calculator, spreadsheets or other mathematical or workplace software
- developed estimation and assessment processes
- implications of calculations and results for workplace tasks

- specialised and formal mathematical written language and symbolism relevant to workplace task.
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Assessment Conditions

Competency is to be assessed in the workplace, a workplace simulated environment or a vocational training context.

Assistive technologies can be utilised to assist with oral and written communication.

Skills must be demonstrated independently using highly complex texts and tasks that reflect those typically found in a workplace.

The following resources are to be made available:

- a scientific calculator or graphing software
- own familiar support resources.

Assessors must:

- satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards, and
- have sound knowledge of the ACSF and performance features of the ACSF level being assessed, and
- have demonstrable expertise, knowledge and skills in the vocational contextualisation and assessment of the core skill, numeracy, and
- have completed the following or equivalent:
 - TAESS00009 Address Foundation Skills in Vocational Practice Skill Set; or
 - a higher level education qualification, such as:
 - TAE80113 Graduate Diploma of Adult Language, Literacy and Numeracy Practice (and its equivalent TAE70111); or
 - Bachelor of Education, Graduate Certificate or Graduate Diploma of Education, or higher. This may include qualifications relating to TESOL, adult education or vocational education.

Links

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