



Australian Government

FSKNUM038 Use introductory vectors

Release: 1

FSKNUM038 Use introductory vectors

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 apply basic vectors to work-related problems. It includes extracting and analysing mathematical information relevant to vectors, applying vector techniques to the solution of workplace problems, 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, 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 relevant to vectors	1.1 Extract highly embedded mathematical information related to vectors from a broad range of highly complex workplace texts and tasks 1.2 Incorporate information from other sources to inform and support

Element	Performance Criteria
	analysis of the extracted information, where necessary 1.3 Analyse mathematical information related to vectors required to complete workplace task
2. Apply the techniques of vectors to the solution of problems in two dimensions 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 vector calculations to complete workplace task 2.3 Perform basic vector calculations relevant to workplace 2.4 Apply graphical techniques to solve simple vector problems in the workplace 2.5 Check outcomes and critically review mathematics used and real-world implications of results using developed estimation and evaluation techniques
3. Communicate 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 FSKNUM38 Use introductory vectors 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 FSKNUM038 Use introductory vectors

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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 problem solving processes with basic vectors to complete a workplace task, including:
 - manipulating vectors, including:
 - expressing two dimensional vectors in different forms
 - converting vectors between polar and rectangular form
 - performing mathematical operations on vectors
 - solving simple vector problems using graphical techniques
- 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:

- relevance and use of vectors in the workplace
- features of vectors
- different vector forms
- basic vector calculations
- graphical techniques appropriate to solve vector problems
- implications of calculations and results for workplace tasks
- developed estimation and evaluation processes
- specialised and formal mathematical 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 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
- 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.
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