



Australian Government

MEM12024 Perform computations

Release: 1

MEM12024 Perform computations

Modification History

Release 1. Supersedes and is equivalent to MEM12024A Perform computations

Application

This unit of competency defines the skills and knowledge required to estimate approximate answers to arithmetical problems, carry out calculations involving percentages and proportions, and determine simple ratios and averages.

It also covers producing and interpreting simple charts and graphs in manufacturing, engineering or related environments.

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

Band: A

Unit Weight: 3

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Measurement

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Identify job requirements from specifications, sketches, job sheets or work instructions
		1.4	Establish required calculation outcomes from job

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

instructions

1.5 Determine required calculation method to suit the application, including selection of relevant arithmetic operations and/or formulae

1.6 Estimate expected results, including rounding off, as appropriate

2 **Perform calculations**

2.1 Apply calculation method

2.2 Obtain answer and check against estimation to ensure it is correct

3 **Produce charts and graphs from given information**

3.1 Transpose data to produce charts or graphs

3.2 Ensure charts or graphs reflect data on which they are based to meet specifications

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Calculations are performed using one (1) or more of the following:

- pen and paper
- a calculator
- tables
- tablets
- computers

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Relevant sources include one (1) or more of the following:

- charts
- graphs
- diagrams
- measurement data
- reference manuals
- specifications

Applications include computations associated with one (1) or more of the following:

- pressure
- volume
- temperature
- heat
- speed
- power
- elasticity
- density
- mass
- force

Arithmetic operations include the following:

- application of subtraction, addition, multiplication and division
- manipulation of decimals, fractions and mixed numbers and whole numbers
- using formulas
- determining percentages
- calculation of proportions and ratios

Charts and graphs include one (1) or more of the following:

- simple histograms
- control charts
- pie charts

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM12024 Perform computations

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- obtaining and interpreting data from job instructions and relevant sources to establish required outcomes
- determining the appropriate calculation method to suit the application
- performing calculations and confirming answer/s
- producing and interpreting simple charts and graphs from given data.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures
- formulae applicable to the determination of perimeter, area and volume of simple geometric shapes and the reasons for using dimensions with the same units
- techniques and procedures for rounding off figures when estimating approximate answers
- features and use of mixed numbers, decimals, fractions and whole numbers
- procedures for carrying out calculations involving fractions and using each of the four basic rules of addition, subtraction, multiplication and division
- concept of percentage and procedures to be followed in converting a decimal and fraction to a percentage
- concepts and calculations of ratio and proportion
- scales applicable to the axes of the graphs or charts
- types of charts and/or graphs used in the individual's field of work
- upper and lower limits of acceptability applicable to data entered on a graph or chart
- trends indicated by the slope or gradient of a graph
- action to be taken when given trends occur or set limits are approached on graphs or charts
- procedures for drawing 'lines of best fit'
- trends indicated by the graphs or charts drawn.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing computations at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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