

APPLY BASIC MATHEMATICS

UNIT CODE: ENG/OS/RAC/CC/02/4/A

UNIT DESCRIPTION:

This unit describes the competencies required to apply basic mathematics. It involves applying fractions and decimals, basic algebra, carrying out mensuration, plotting simple graphs and applying ratios.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. (<i>Bold and italicized terms are elaborated in the Range</i>)
1. Apply fractions and decimals	1.1 Calculations of proper fractions and mixed numbers as per the concept 1.2 Conversion of Mixed and improper fractions as per concept 1.3 Application of fractions as per concept 1.4 Conversion of fractions as per concept
2. Apply basic algebra	2.1 Calculations involving Indices are performed based on the concept 2.2 Linear equations are represented based on the concept 2.3 Simultaneous equations are performed based on mathematical rules 2.4 Simple algebraic equations are formed based on the concept 2.5 Simple algebraic equations are solved based on the concept
3. Carry out basic mensuration	3.1 Various <i>units of measurements</i> are identified based on the course requirements 3.2 Units are converted 3.3 Perimeter and areas of <i>regular figures</i> are obtained based on known formulae 3.4 Volume and Surface area of solids are obtained based on given formulae
4. Plot simple graphs	4.1 A <i>graph</i> is plotted for given set of data 4.2 Information from a given graph is interpreted based on data

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. (<i>Bold and italicized terms are elaborated in the Range</i>)
5. Apply Ratios	5.1 Rational and irrational numbers are differentiated 5.2 Ratios are expressed as percentages 5.3 Problems involving direct and inverse proportions are solved

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Units of measurement may include but not limited to:	<ul style="list-style-type: none"> • Millimetres • Centimetres • Metres • Kilometres • Grams • Kilograms
2. Regular Figures may include but not limited to	<ul style="list-style-type: none"> • Square • Rectangle • Triangle • Polygons • Circles
3. Graphs may include but not limited to	<ul style="list-style-type: none"> • Linear graphs • Bar graphs • Pictograph

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Problem solving
- Drawing

- sketching
- measuring skills
- calculations

Required knowledge

The individual needs to demonstrate knowledge of:

- Fundamental operations (addition, subtraction, division, multiplication)
- Calculating area, surface area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Rounding techniques
- Types of fractions
- Types of tables and graphs
- Presentation

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills, knowledge and range.

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Calculated Proper fractions and mixed numbers 1.2 Converted Mixed and improper fractions Applied fractions 1.3 Converted fractions 1.4 Represented linear equations 1.5 Solved simultaneous equations 1.6 Formed simple algebraic equations 1.7 Solved simple algebraic equations 1.8 Identified various units of measurements 1.9 Converted units 1.10 Obtained perimeter and areas of regular figures 1.11 Obtained volume and Surface area of solids 1.12 Plotted graph for given set of data 1.13 Interpreted information from a given graph 1.14 Converted numbers from one base to another 1.15 Differentiated between rational and irrational numbers 1.16 Expressed ratios as percentages 1.17 Solved problems involving direct and inverse proportions
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2. Resource Implications	The following resources should be provided: 2.1 Access to relevant or appropriate environment where assessment can take place 2.2 Measuring equipment 2.3 Materials relevant to the proposed activity or tasks
3. Methods of Assessment	Competency in this unit may be assessed through: 1.1 Written tests 1.2 Direct Observation 1.3 Demonstration with Oral Questioning
4. Context of Assessment	Competency may be assessed individually in the actual workplace or through accredited institution or during industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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