

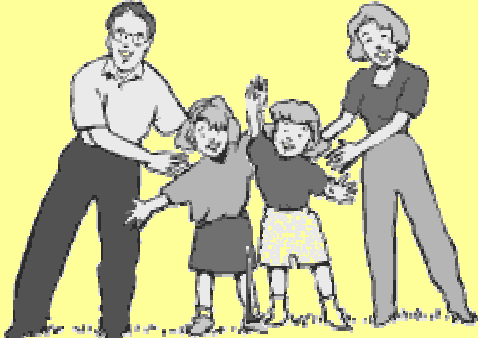


NQF Level: **1** US No: **7449**

Learner Workbook

Primary Agriculture

**The use of
Mathematics in
Social, Political and
Economic Relations**




My name:


My Workplace:

Commodity: Date:

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National Department of Agriculture and the AgriSETA.



agriculture
Department:
Agriculture
REPUBLIC OF SOUTH AFRICA



Before we start...

Dear Learner - on completion of the Learner Guide, you should have acquired all the knowledge and skills to be assessed against the following unit standard:

Title:	Critically analyse how mathematics is used in social, political and economic relations		
US No:	7449	NQF Level:	1
		Credits:	2

Please read the unit standard at your own time (see Learning Guide).

What is assessment all about?

Assessment takes place at different intervals of the learning process and includes various activities. Some activities will be done before the commencement of the program whilst others will be done during programme delivery and other after completion of the program.

The assessment experience should be user friendly, transparent and fair. Should you feel that you have been treated unfairly, you have the right to appeal. Please ask your facilitator about the appeals process and make your own notes.

How to use this workbook ...

Your activity workbook will be handed in from time to time on request of the facilitator for the following purposes:

- ◆ The activities that follow are designed to help you gain the skills, knowledge and attitudes that you need in order to become competent in this learning module.
- ◆ It is important that you complete all the activities and worksheets, as directed in the learner guide and at the time indicated by the facilitator.
- ◆ It is important that you ask questions and participate as much as possible in order to play an active roll in reaching competence.
- ◆ When you have completed all the activities and worksheets, hand this workbook in to the assessor who will mark it and guide you in areas where additional learning might be required.
- ◆ You should not move on to the next step in the assessment process until this step is completed, marked and you have received feedback from the assessor.
- ◆ Sources of information to complete these activities should be identified by your facilitator.
- ◆ **Please note** that all completed activities, tasks and other items on which you were assessed must be kept in good order as it becomes part of your **Portfolio of Evidence** for final assessment.



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SO 1

Individual assignment.

My Name:

My Workplace:

My ID Number:

Write down a formula to calculate each of the following:

- 1. Johanna earns R 12 per hour. She works 9 hours per day. She gets paid weekly. What is her weekly gross pay?
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- 2. Themba earns a gross salary of R 650 per week. He has weekly deductions for UIF at 1% of his weekly wage, and 1% SDL. What is his net wage per week?
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- 3. Xoli is the union representative. He has negotiated a wage increase of 6% for the workers on the farm. He has to explain to two workers how much they would now earn. The first worker is Sabatha who earns R 650.00 per week and the second worker is Patience who earns R 660.00 per week.
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- 4. If Xoli had negotiated a R60 across the board increase – how would it change the explanation of the wages for Sabatha and Patience above?
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Facilitator comments:

Assessment:



3
SO 1

Individual work

My Name:

My Workplace:

My ID Number:

You are working on a strawberry farm. There are 10 people in the team. The team has been given the task of planting strawberry seedlings for the day. The team leader has explained that if all 5000 plants are planted within 1 day, then the team will receive a bonus of R 500 for the week. But all the team members do not work at the same rate (they are not equally productive).

- 1. How will you measure each person's productivity ratio, to make sure that the bonus is divided fairly between all the team members, according to their productivity ratio?
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Facilitator comments:

Assessment:



4
SO 1

Complete the worksheet

My Name:
My Workplace:
My ID Number:

The average (mean) is calculated by adding up the figures given and then dividing by the total number of figures:

Average = total amount + total number of figures

Example:

Find the average of 2, 4, 6. The total amount is $2 + 4 + 6 = 12$. There are 3 numbers, the average is therefore: $12 \div 3 = 4$

1. Calculate the average of these figures:
- 1. 5, 12, 7
 - 2. 6, 9, 15
 - 3. 21, 32, 28
 - 4. 44, 37, 48, 35
 - 5. 92, 76, 88, 80
 - 6. 103, 98, 87, 95, 102
 - 7. 1 003, 989, 654, 1 226

Facilitator comments:

Assessment:



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SO 2

Work in pairs

My Name:

My Workplace:

My ID Number:

- In pairs look up the meaning of the following terms from a dictionary, then write next to it what you understand by that term and how you might use it in your life (with a practical example).

Term	Dictionary meaning	What I understand / an example from my life
Budgeting		
Interest rates		
Mortgage		
Service charges		
Fuel prices		
Pensions		
Inflation		
Value of the rand		
Exchange rates.		

Individually complete the following worksheet:

2. Write down an example of your weekly budget below:

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3. Explain in your own words how you used mathematics to draw-up your budget.

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4. Research and find out what the interest % and amount would be if you bought a fridge from your local furniture store. Write down the sums you would do to calculate your monthly payment, and also the total amount that you will pay in order to complete payments for this fridge.

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5. Go to the bank and ask them that you would like to have an information leaflet about mortgages. Paste the leaflet below. Summarise in your own words what a mortgage is, and how you think it works.

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Facilitator comments:

Assessment:

6. Go to the bank and ask them that you would like to have an information leaflet about service charges. Paste the leaflet below. Summarise in your own words what a service charges are, and how you think it works.

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7. Hold a group discussion and explain what you think the impact of the following types of things might be on Agriculture:

Fuel prices	
Inflation	
Value of the rand	
Exchange rates	

8. If the old age pension from the state is R 178.00 per month. How does it differ from your current monthly income?

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Facilitator comments:

Assessment:



6 SO 3

Group Work

My Name:

My Workplace:

My ID Number:

- As a group - look at the statistics below, then discuss amongst yourselves and indicate how the statistics of your group compares with that state:

	National Statistic	Average of people in our group	Expressed as percentages
Population:	44,187,637 Note: estimates for this country explicitly take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality and death rates, lower population and growth rates, and changes in the distribution of population by age and sex than would otherwise be expected (July 2006 est.)		
Age structure:	<i>0-14 years:</i> 29.7% (male 6,603,220/female 6,525,810) <i>15-64 years:</i> 65% (male 13,955,950/female 14,766,843) <i>65 years and over:</i> 5.3% (male 905,870/female 1,429,944) (2006 est.)		
Median age:	<i>Total:</i> 24.1 years <i>Male:</i> 23.3 years <i>Female:</i> 25 years (2006 est.)		
Population growth rate:	-0.4% (2006 est.)		
Birth rate:	18.2 births/1,000 population (2006 est.)		
Death rate:	22 deaths/1,000 population (2006 est.)		
Net migration rate:	-0.16 migrant(s)/1,000 population Note: there is an increasing flow of Zimbabweans into South Africa and Botswana in search of better economic opportunities (2006 est.)		
Sex ratio:	<i>At birth:</i> 1.02 male(s)/female <i>Under 15 years:</i> 1.01 male(s)/female <i>15-64 years:</i> 0.95 male(s)/female <i>65 years and over:</i> 0.63 male(s)/female <i>Total population:</i> 0.95 male(s)/female (2006 est.)		

	National Statistic	Average of people in our group	Expressed as percentages
Infant mortality rate:	Total: 60.66 deaths/1,000 live births Male: 64.31 deaths/1,000 live births Female: 56.92 deaths/1,000 live births (2006 est.)		
Life expectancy at birth:	Total population: 42.73 years Male: 43.25 years Female: 42.19 years (2006 est.)		
Total fertility rate:	2.2 children born/woman (2006 est.)		
HIV/AIDS - adult prevalence rate:	21.5% (2003 est.)		
HIV/AIDS - people living with HIV/AIDS:	5.3 million (2003 est.)		
HIV/AIDS - deaths:	370,000 (2003 est.)		
Ethnic groups:	Black African 79%, white 9.6%, coloured 8.9%, Indian/Asian 2.5% (2001 census)		
Religions:	Zion Christian 11.1%, Pentecostal/Charismatic 8.2%, Catholic 7.1%, Methodist 6.8%, Dutch Reformed 6.7%, Anglican 3.8%, other Christian 36%, Islam 1.5%, other 2.3%, unspecified 1.4%, none 15.1% (2001 census)		
Languages:	IsiZulu 23.8%, IsiXhosa 17.6%, Afrikaans 13.3%, Sepedi 9.4%, English 8.2%, Setswana 8.2%, Sesotho 7.9%, Xitsonga 4.4%, other 7.2% (2001 census)		
Literacy:	Definition: age 15 and over can read and write Total population: 86.4% Male: 87% Female: 85.7% (2003 est.)		

Facilitator comments:

Assessment:

2. Recall how political situations in the past applied mathematics to your community:

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3. Discuss how the application of BEE ratios might be of benefit to your community:

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Facilitator comments:

Assessment:



7

SO 4

Work in pairs

My Name:

My Workplace:

My ID Number:

- In pairs look up the meaning of the following terms from a dictionary, then write next to it what you understand by that term and how you might use it in your life (with a practical example):

Term	Dictionary meaning	What I understand / an example from my life
Income distribution		
Census		
Elections		
Voting		
Opinion polls		

Facilitator comments:

Assessment:

Assessment Feedback Form

Comments / Remarks	
Feedback to learner on assessment:	
Feedback from learner to assessor:	
Learner's Signature:	Date:
Assessor's Signature:	Date:

Checklist for practical assessment ...

Use the **checklist** below to help you prepare for the part of the practical assessment when you are observed on the **attitudes** and **attributes** that you need to have to be found competent for this learning module.

Observations	Answer Yes or No	Motivate your Answer (Give examples, reasons, etc.)
Can you identify problems and deficiencies correctly?		
Are you able to work well in a team?		
Do you work in an organised and systematic way while performing all tasks and tests?		
Are you able to collect the correct and appropriate information and / or samples as per the instructions and procedures that you were taught?		
Are you able to communicate your knowledge orally and in writing, in such a way that you show what knowledge you have gained?		
Can you base your tasks and answers on scientific knowledge that you have learnt?		
Are you able to show and perform the tasks required correctly?		
Are you able to link the knowledge, skills and attitudes that you have learnt in this module of learning to specific duties in your job or in the community where you live?		

- ◆ The assessor will complete a checklist that gives details of the points that are checked and assessed by the assessor.
- ◆ The assessor will write commentary and feedback on that checklist. They will discuss all commentary and feedback with you.
- ◆ You will be asked to give your own feedback and to sign this document.
- ◆ **It will be placed together with this completed guide in a file as part of you portfolio of evidence.**
- ◆ The assessor will give you feedback on the test and guide you if there are areas in which you still need further development.

Am I ready for my test?

- ◆ Check your plan carefully to make sure that you **prepare in good time**.
- ◆ You have to be found **competent** by a qualified **assessor** to be declared competent.
- ◆ Inform the assessor if you have any **special needs** or requirements **before** the agreed date for the test to be completed. You might, for example, require an interpreter to translate the questions to your mother tongue, or you might need to take this test orally.
- ◆ Use this worksheet to help you prepare for the test. These are **examples of possible questions** that might appear in the test. All the information you need was taught in the classroom and can be found in the learner guide that you received.
 1. **I am sure** of this and understand it well
 2. **I am unsure** of this and need to ask the Facilitator or Assessor to explain what it means

Questions	1. I am sure	2. I am unsure
1. Describe ways in which mathematics is used in the workplace.		
2. Describe ways in which mathematical relationships and language can be used to represent particular perspectives.		
3. Different forms of comparisons such as differences versus ratio.		
4. Manipulation of graphs through choice of graph, scale of axes and nature of axes.		
5. The use of different averages: mean, median, mode.		
6. Describe the impact of economic changes on an individual.		
7. Describe ways in which mathematics can be used as a filter for social differentiation,		
8. Describe the significance attached to number by different societies.		
9. Describe the use of mathematics in the media.		
10. Income distribution; census; elections; voting; opinion polls.		

Paperwork to be done ...

Please assist the assessor by filling in this form and then sign as instructed.

Learner Information Form			
Unit Standard	7449		
Program Date(s)			
Assessment Date(s)			
Surname			
First Name			
Learner ID / SETA Registration Number			
Job / Role Title			
Home Language			
Gender:	Male:		Female:
Race:	African:	Coloured:	Indian/Asian: White:
Employment:	Permanent:		Non-permanent:
Disabled	Yes:		No:
Date of Birth			
ID Number			
Contact Telephone Numbers			
Email Address			
Postal Address			Signature: