NQF Level: 2 **US No: 7469**

Assessment Guide

Primary Agriculture

Mathematics to investigate and monitor

Assessor: . . . . . .

Workplace / Company: . . . . . .

Commodity: . . . . . Date: . . . . . .

The availability of this product is due to the financial support of the National Department of Agriculture and the AgriSETA.

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Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

AgriSETA

Before we start...

This assessment guide contains all necessary activities and instructions that will enable the assessor and learner to gather evidence of the learner's competence as required by the unit standard. This guide was designed to be used by a trained and accredited assessor whom is registered to assess this specific unit standard as per the requirements of the AgriSETA ETQA.

Prior to the delivery of the program the facilitator and assessor must familiarise themselves with content of this guide, as well as the content of the relevant Learner Workbook.

Please Note:

This Unit Standard **7469** Assessment Guide must be read in conjunction with the generic Assessor Guide as prescribed and published by the AgriSETA.

The assessor, facilitator and learner must plan the assessment process together, in order to offer the learner the maximum support, and the opportunity to reflect competence.

The policies and procedures that are required during the application of this assessment are available on the website of the AgriSETA and should be strictly adhered to. The assessor must familiarise him/herself with this document before proceeding.

This guide provides step-by-step instructions for the assessment process of:

Title:	Use mathematics to investigate and monitor the financial aspects of personal and community life				
US No:	**7469**	**NQF Level:**	2	**Credits:**	2

This unit standard is one of the building blocks in the qualification listed below. Please mark the qualification you are currently assessing, because that will be determined by the context of application:

Title	ID Number	NQF Level	Credits	Mark
National Certificate in Animal Production	48976	2	120	❒
National Certificate in Mixed Farming Systems	48977	2	120	❒
National Certificate in Plant Production	48975	2	120	❒

Please mark the learning program you are enrolled in:

Are you enrolled in a:	Y	N
Learnership?	❒	❒
Skills Program?	❒	❒
Short Course?	❒	❒

Note to Assessor:

If you are assessing this module as part of a full qualification or learnership, please ensure that you have familiarized yourself with the content of the qualification.

Activity Answers

1

SO 1 AC 1

Instructions to learner:

Complete the following tasks

Learner Guide: Page 16 **Facilitator Guide: Page 11**

1. Make a list of your monthly expenses and then think of the monthly expenses that your company is responsible for. Compare these two lists and describe any differences and similarities.

Model Answer(s):

Own monthly expenses must be realistic amounts. Must be drawn up in table format.

Employer's monthly expenses must be realistic and at least eight different expenses must be listed. Must be in table format.

Similarities and differences would vary according to the situation of the learner. What should emerge from this exercise is that the employer has far greater expenses.

2. You are given a budget of R1 000 by your company. They want you to provide lunch for a team of 5 people for 4 weeks (5 days a week). Plan what you will provide as lunch, what you need to provide the lunch, how much you will need and what it will cost.

Model Answer(s):

At R1000 you can spend R10 per person per lunch.

Check for the following:

Menu is varied: There does not have to be a different meal every day, but the meals should not all be the same either. The best option would be to have a menu for one week which is then repeated every week.

The proposed menu is realistic and appropriate.

The ingredients must be easily accessible and available.

My Notes ...

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3. You have been put in charge of a field of 1000 m^2. The field must be ploughed, fertilised, planted with cabbage seedlings and watered. Pests and weeds need to be controlled. Draw up a budget of the expenses for the first month.

Model Answer(s):

Costs and expenditure will vary from learner to learner. Below is merely an example.

Item	***Cost***
Fuel for tractor	*All costs must be realistic*
Labour for ploughing	
Fertilizer	
Purchase of cabbage seedlings	
Labour for planting	
Power for irrigation system	
Pesticide	
Labour for weeding	

My Notes ...

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Activity Answers

2

SO 2 AC 2

Instructions to learner:

Complete the following tasks

Learner Guide: Page 30 **Facilitator Guide: Page 12**

1. You have made a profit of R10 000 this year. You have to decide on the best way to invest the money. Your bank offers you the following choices:

a you can invest the money at 13% interest per annum compounded annually for 5 years

b you can invest the money at 12% interest per annum compounded monthly for 5 years.

c You can invest the money at 14% simple interest for 5 years.

Do the necessary calculations to show which would be the best choice.

Model Answer(s):

a) *A = ?*
P = 10 000
r = 13%
n = 5 years

$A = P(1 + \frac{r}{100})^n$

$= 10\,000\,(1 + \frac{13}{100})^5$

$= \underline{R\ 18424{,}35}$

b) *A = ?*
P = 10 000
r = 12% = 1% per month
n = 5 years = 60 months

$A = P(1 + \frac{r}{100})^n$

$= 10\,000\,(1 + \frac{1}{100})^{60}$

$= \underline{R\ 18166.97}$

c) *A = ?*
P = 10 000
r = 14%
n = 5 years

$A = P + \frac{(Ptr)}{100}$

$= 10\,000 + \frac{(10\,000 \times 5 \times 14)}{100}$

$= \underline{R\ 17000}$

2. You have just purchased a brand new bakkie at R150 000.00. Determine what the bakkie will be worth in 5 years time if it depreciates at 14% per year.

Model Answer(s):

A = ?
P = 150 000
r = 14%
n = 5 years

$A = P(1 - \frac{r}{100})^n$

$= 150\,000\,(1 - \frac{14}{100})^5$

$= \underline{R\ 288\,812{,}19}$

3. The Zondo family uses a loan of R 8 500 to make improvements to their farm. They repay the loan in one amount at the end of 3 years. How much money would the Zondos need to repay the loan if the interest is calculated as:

a 17% per annum simple interest

b 14% per annum compound interest

Model Answer(s):

a) *A = ?*
P = 8500
r = 17%
n = 3 years

$$A = P + \frac{Prn}{100}$$
$$= 8500 + \frac{8500 \times 17 \times 3}{100}$$
$$= R\ 12835$$

b) *A = ?*
P = 8500
r = 14%
n = 3 years

$$A = P(1 + \frac{r}{100})^n$$
$$= 8500\ (1 + \frac{14}{100})^3$$
$$= R\ 125593{,}12$$

4. Your friend needs R16 000 urgently for a family funeral. The bank is only prepared to lend him R15 000 at 26% interest. He tells you that he has heard of a man who provides loans at 35% per annum – no questions asked. You need to explain to him that it would be better to obtain the money from a bank by showing him how much he owes over 1 year for both cases (Assume that he makes no repayments). Make a feasible suggestion as to how he could reduce the costs by R1000.

Model Answer(s):

Bank:
A = ?
P = 15000
r = 26%
n = 1 year

$$A = P(1 + \frac{r}{100})^n$$
$$= 15000\ (1 + \frac{26}{100})^1$$
$$= R\ 18900$$

Money lender
A = ?
P = 16000
r = 35%
n = 1 year

$$A = P(1 + \frac{r}{100})^n$$
$$= 16000\ (1 + \frac{35}{100})^1$$
$$= R\ 21600$$

He could save R1000 by …….. *any reasonable answer.*

5. A basic pesticide applicator costs R230. Determine the expected cost of a similar applicator in 5 years time, based on an inflation rate of 18% per annum. (Hint: You can use the compound interest formula for this calculation.)

Model Answer(s):

A = ?
P = 230
r = 18%
n = 5 years

$A = P(1 + \frac{r}{100})^n$

$= 230 (1 + \frac{18}{100})^5$

$= \underline{R\ 526,18}$

6. Investigate at least two unit trusts and write a report on your findings. You need to cover the following aspects:

a How do unit trusts work?

b Which is the best unit trust?

c How much would it grow over 5years?.

Model Answer(s):

As unit trusts change over time, the assessor will have to do his own research to determine whether answers are reasonable.

7. Your friend wants to start a stokvel involving 85 people each contributing R100 per month. There will be a payout every month. Your friend is trying to convince you to join.

a How much will the payout every month be?

b How long (in years and months) must this stokvel run so that each person receives at least one payout?

c Who benefits the most: the one who receives the payment first or the one that receives the payment last? Explain your reasoning.

d What possible problems could there be when this stokvel is in operation?

e What would you advise your friend to do so that the risks are minimized?

Model Answer(s):

a) 85 x R100 = R8 500
b) 85 months = 7 years and 1 month
c) The one who receives the payout first as the R8500 is worth more now than in 7 years time due to inflation.
d) members could have financial difficulties and be unable to pay
- *members could die*
- *inflation rate could rise*
- *members may wish to immigrate*
- *any reasonable other*

e) - limit the number of people or share monthly payout to reduce time frame
- *Draw up a contract which makes the provision for a guarantor in the case of financial difficulties*
  - *Increase payments every year to compensate for inflation*
  - *Any reasonable other*

Activity Answers

3

SO 3 AC 3

Instructions to learner:

Complete the following tasks

Learner Guide: Page 41 Facilitator Guide: Page 13

1. Use the 1000m^2 cabbage field from an earlier exercise to explain the differences between

a. Cost

b. Cost price

c. Selling price

d. Profit

e. Loss

Model Answer(s):

Cost:	*Anything that is needed in production i.e. cost of land, ploughing, fertilizer, water, seedlings etc*
Cost price:	*What it would cost you to produce one cabbage*
Selling price:	*The amount that you will sell one cabbage for.*
Profit:	*Selling price – cost price*
Loss:	*If selling price – cost price gives a negative answer i.e. if the cost price is higher than the selling price.*

2. Think about your job. Work out what you think the costs are for the company to employ you. You need to consider the following: Wages/salary, accommodation, transport, telephone, lunch time, meals, etc

Model Answer(s):

Refer to the learners answer for Activity 1 no 1. Check whether the amounts are reasonable.

3. After years of experience on a cattle farm you decide to become a cattle buyer. You purchase cattle at auctions and the transport them and sell them to an abbatoir.

a. List the initial costs and approximate amounts that you would have in order to set up your business.

b. List the monthly expense that you would have.

c. What problems are you likely to encounter when you first start buying and selling cattle? List at least three.

d. Describe how you would overcome the problems listed above.

Model Answer(s):

a) cattle truck, petrol, telephone, office, holding pen, fodder, dip etc

b) add reasonably accurate amounts in a table format to the expenses listed in a) above

c) cattle could be diagnosed as diseased once they reach the abbatoir and be rejected,
Cattle could die on route to the abbatoir
Abbatoir quota per day could suddenly drop and you have too much stock
Truck could break down
You could have paid more for the cattle than you can sell them for.

d) Any reasonable

My Notes ...

Activity Answers

4

SO 3 AC 4

Instructions to learner:

Self check

Learner Guide: Page 44 Facilitator Guide: Page 13

You live on a plot about 20km from the nearest town. Your wife wants to start a Spaza shop on your small holding to boost your income. Think about the needs of the people who live in your community.

1. What would they buy from you?

We will assume that you have at least one hundred customers in your community that will buy from you. (Remember that you are not allowed to sell anything illegal. If you want to sell beer, then you need a liquor license and will have to find out what it costs.)

2. Select 5 of the most essential supplies and work out the following:
   a. How much stock will you need
   b. What equipment you will need
   c. How much this will cost
   d. How much profit you can make for 1 month
   e. How much profit you can make for 1 year
   f. What your factors of production are and say why you say so
3. Write all the costs up into a budget.
4. Assume that you have made a profit of R40 000 in your first year. Now work out what is the best investment that you can make with the profit. Work out the simple interest (11%) and compare it to compound interest (11% compounded annually).
5. Assume you bought a fridge for R3000. Work out the value of your fridge in two years time if the rate of depreciation is 20%.

Model Answer(s):

a) Any reasonable answer is acceptable.

b) The answers will obviously vary with the items that the learners have selected to sell. Answers must be reasonable.

c) Budget must be in table form and must make sense. Amounts quoted should be realistic.

d) Simple interest:

$A = ?$ $\quad A = P + \frac{Prn}{100}$

$P = 40\,000$

$r = 11\%$ $\quad = 40\,000 + \frac{40\,000 \times 11 \times 4}{100}$

n = 4 years

$= \underline{R\ 57\ 600}$

Compound interest:

A = ?
P = 40 000
r = 11%
n = 4 years

$A = P(1 + \frac{r}{100})^n$

$= 40\,000\,(1 + \frac{11}{100})^4$

$= \underline{R\ 60722{,}82}$

e)

A = ?
P = 3 000
r = 20%
n = 2 years

$A = P(1 - \frac{r}{100})^n$

$= 3\,000\,(1 - \frac{20}{100})^2$

$= \underline{R\ 1920}$

My Notes ...

Summative Test and Attitude & Attribute Evaluation

Before the knowledge test is undertaken, the learner must be reminded of what is expected from him / her in terms of summative and reflexive competence. Read and explain to the learner, the **Preparation for Your Final Assessment** section in the learner workbook. Learners and assessor should sign off this section to acknowledge that this step was completed.

Please set up a knowledge test from the questions given as a guideline to learners and supply each learner with a test sheet.

Supply each report with the following heading:

Unit Standard:	7469	**NQF Level:**	2
Learner Name:			

Questions	Model Answers
Read this passage carefully so that you understand James' situation. **Drawing up a budget for James** James lives in town but works on a farm. He earns R3 240 per month. Each month he pays R135 for Medical Aid, R50 for Unemployment Insurance, R220 for the Pension Fund and R20 Union fees. His daily taxi fare is R5 and he works for 24 days per month. He spends about R800 on groceries and R260 on clothing each month. He gives his son an allowance of R45 per month, pays monthly school fees of R200 and spends R280 on bus fare per month for his son. The rent for his room is R400 per month and the water and lights account is about R150. He has a funeral plan to which he contributes R40 per month, and his cell phone expenses are R120 using prepaid vouchers. He has incidental expenses amounting to approximately R200. He invests R4O each month in an Education Plan for his son's future education.	

1. Answer these questions from the text above.

a How much does he spend on taxi fares per month?

b What are his total expenses for transport each month for him and his son?

(2x2=4)

a *How much does he spend on taxi fares per month?*
5 x R24 = R120

b *What are his total expenses for transport each month for him and his son?*
R280 + R120 = R400

2. Redraw the table of James' Monthly budget and fill in the blank spaces. The shaded area do not need filling in. You will be able to use your answers from number 1 above.

Income per month in rands	Expenditure Item	Expenditure in rands
R3 240,00		
	Cell phone	
	Clothing	
	Funeral plan	
	Groceries	
	Household expenses	
	Incidental expenses	
	Investment in the Education Plan	
	Medical Aid	
	Pension Fund	
	Rent	
	School fees	
	Son's allowance	
	Transport	
	Unemployment insurance	
	Union fees	
	Water and lights	
	Total Expenses	
Income less Total Expenses		

($^{1}/_{2}$ x 18 = 9)

Income per month in rands	*Expenditure Item*	*Expenditure in rands*
R3 240,00		
	Cell phone	*R 120*
	Clothing	*R 260*
	Funeral plan	*R 40*
	Groceries	*R 800*
	Household expenses	
	Incidental expenses	*R 200*
	Investment in the Education Plan	*R 40*
	Medical Aid	*R 135*
	Pension Fund	*R 220*
	Rent	*R 400*
	School fees	*R 200*
	Son's allowance	*R 45*
	Transport	*R 400*
	Unemployment insurance	*R 50*
	Union fees	*R 20*
	Water and lights	*R 150*
	Total Expenses	*R3080*
Income less Total Expenses		*R 160*

3. Now answer the following questions: a What percentage of his income does James spend on transport? (2) b What percentage of his total income does he invest each month in the Education Plan for his son? 2) c At the end of the year James will have a rent increase of 20%. Calculate the new rent increase James will have to pay. (2) d Look at James' budget and write down four variable expenses. (4) e List at least four examples of fixed expenses in his budget. **(4)**	a *What percentage of his income does James spend on transport?* *R400/R3240 x 100 = 12,35%* b *What percentage of his total income does he invest each month in the Education Plan for his son?* *R40/R3240 x 100 = 1,23%* c *At the end of the year James will have a rent increase of 20%. Calculate the new rent increase James will have to pay.* *R400 + (20/100 x400) = R400 + R80 = R480* d *Look at James' budget and write down four variable expenses.* *Cell phone, clothing, groceries, household expenses, incidental expenses* e *List at least four examples of fixed expenses in his budget.* *Funeral plan, Education plan, rent, school fees, medical aid etc.*
4. James has saved R2 000 and wants to invest the money in a fixed deposit account. He will earn 21% interest compounded monthly. How much money will he have after 7 years? **(3)** **Total marks: 30**	*A = ?* *P = 2000* *r = 21%* *n = 7 year* $A = P(1 + \frac{r}{100})^n$ $= 2000 (1 + \frac{21}{100})^7$ $= \underline{R\ 7595}$

Assessment Feedback Form

Comments / Remarks	
Feedback to learner on assessment and / or overall recommendations and action plan for competence:	
Feedback from learner to assessor:	
Assessment Judgement You have been found: ❍ Competent ❍ Not yet competent in this unit standard	Actions to follow: ❍ Assessor report to ETQA ❍ Learner results and attendance certification issued
Learner's Signature:	**Date:**
Assessor's Signature:	**Date:**
Moderator's Signature:	**Date:**