



# inseta

INSURANCE SECTOR EDUCATION  
AND TRAINING AUTHORITY

<b>Learner Name</b>	
<b>ID Number</b>	
<b>Organisation</b>	

## FORMATIVE ASSESSMENT: LEARNER WORK FILE VERSION 1

Unit Standard Title:

**Use Mathematics to investigate and monitor  
the financial aspects of personal, business,  
national and international issues**

Unit Standard No: **7468**  
Unit Standard Credits: **6**  
NQF Level: **4**

### Mark information:

Specific Outcome/Section	1	2	3	4	5	Total	%	C / NYC
<b>Maximum marks</b>	24	86	35	45		190	100	

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**Section 1: 24 marks****Activity 1****(8 marks)**

Identify what your goals are. These could be things like a holiday, deposit for a car, a new TV etc. Choose 2 short term goals and calculate how much you need to save to realise each goal.

1. My short term goal is:

**(1)**

How much does your goal cost?

**(1)**

When do you want to achieve your goal?

**(1)**

How much do you need to save per month to reach your goal?

**(1)**

2. My short term goal is:

**(1)**

How much does your goal cost?

(1)

When do you want to achieve your goal?

(1)

How much do you need to save per month to reach your goal?

(1)

### Self-Assessment 1

(6 marks)

Take some time to reflect on what you have learnt in this module and assess your knowledge against the following pointers. Should you be unable to complete the answers, go back to your notes and check on your understanding of the concepts.

**Briefly** describe each of the following financial instruments to a client who is interested in investing with you:

1. Insurance

2 Assurance

3. Stock exchange dealings

4. Options

5. Futures

6. Bonds

**Assessment 1**

**(10 marks)**

1. What is the difference between insurance and assurance?

**(2)**

2. Give 2 reasons why you might need:

**(4)**

(a) Short term insurance

(b) Assurance

3. What is the benefit of investing in unit trusts?

(1)

4. What is the difference between an option and a future?

(2)

5. Where does the purchasing of shares in a company take place?

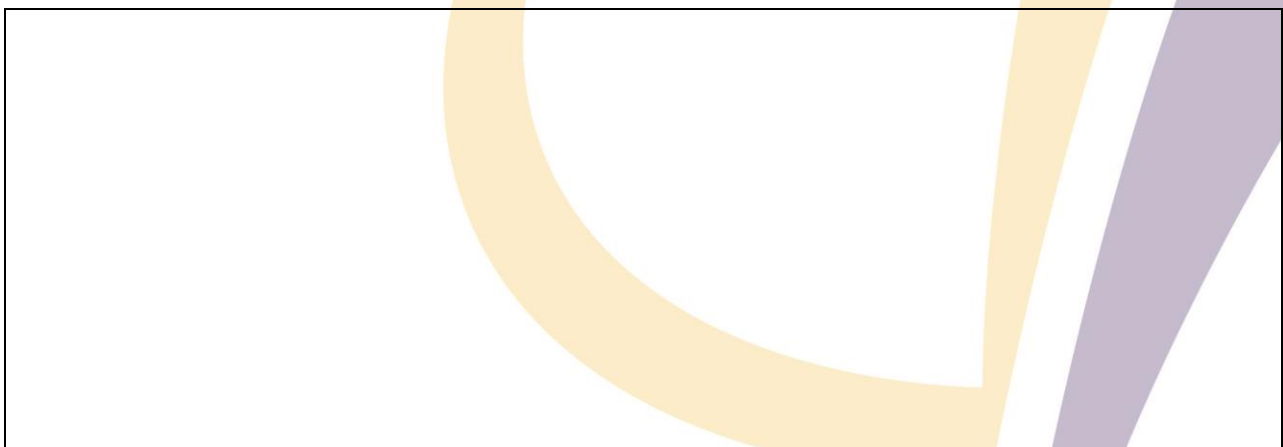
(1)

**Section 2: 86 marks****Activity 2****(16 marks)**

1. Daniel and Lesley each invest R7 000 for 4 years. Daniel's investment is at 9% p.a. compound interest and Lesley's at 10% p.a. simple interest. Who earns the greater interest and by how much? (8)



2. What is the future value of R15 000 due in 5 years time at 12% compound interest p.a.  
ie. What will it amount to? (4)



3. A policy is made paid-up with R 5 000-00 in the investment account. If the investment account grows at 12% per annum for the next 10 years, what will its value be? (4)

**Activity 3****(20 marks)**

1. Colin invests R4000 for 2 years at 10% interest. It is compounded half-yearly. How much will it amount to? (5)

2. You invest R5000 at 6% interest p.a. The interest is compounded quarterly. How much will you receive from your investment at the end of 1 year? (5)

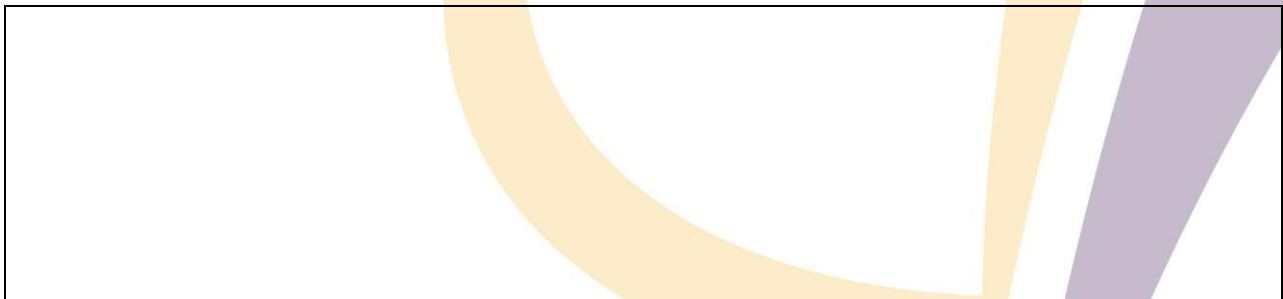
3. Will R1 000-00 invested at 10% per annum interest (compounded monthly) result in a bigger balance than the same amount invested at 10% annually compounded? Do the necessary calculations to substantiate your answer. **(8)**

**Activity 4****(7 marks)**

1. What would the balance be in an interest bearing investment account after 10 years if the investor deposits R 100 000 in the account and uses the interest to finance his lifestyle? **(1)**



2. How much must be invested now in order to get a return of R 42 000.00 in 6 years time if the growth rate of the investment is 18% p.a. compounded annually? **(3)**





3. If a beach cottage will cost R 750 000 at retirement in 20 years time, how much money must be invested now if the investment will realise 10% growth per annum (compounded annually)? **(3)**

**Activity 5****(14 marks)**

1(a) If a family needs R10 000 per month protected against the eroding effects of inflation for the next 20 years, how much capital should be available if the interest rate is equal to inflation rates? **(2)**

(b) If the interest rate in the above example is higher than the inflation rate, will the family have a capital deficit or a capital surplus? **(1)**

(c) If the inflation rate is higher than the growth rate in the above example, will the family have a capital deficit or a capital surplus at the end of 20 years? **(1)**

2. Is it true that, if investment returns are 2% more than the inflation rate, clients need to invest less capital to still reach the same financial goals? **(1)**

3. Will the maturity value of R450 000 on an endowment policy 9 years from now be sufficient to purchase a car then, that now costs R180 000, if inflation averages at 7% per annum?

Hint: (a) First find the discounted present value of the policy.  
or (b) find the future value of the car after 9 years.

**(9)**

### Self-Assessment 2

**(9)**

Take some time to reflect on what you have learnt in this module and assess your knowledge against the following concepts. Should you be unable to complete the answers, go back to your notes and check on your understanding of the concepts.

**Define the following:**

Simple interest

Compound interest

Mortgage Loans

Hire Purchase

Annuities

Sinking Funds



**Present and future values****Capitilisation****Assessment 2****(20 marks)**

1. Explain the difference between compound and simple interest.

**(2)**2. In the formula for compound interest  $FV = P(1 + r/100)^n$ ,  
what do the FV, P, r and n represent?**(4)**

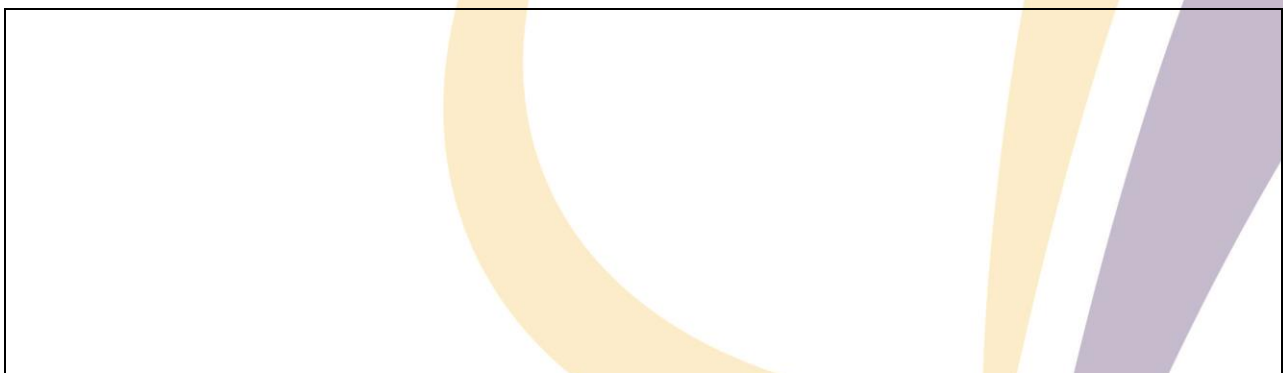
3. Calculate the difference between simple and compound interest earned on R4000 for 3 years at 6% p.a. **(8)**



4. What do we call the current value of a future cash payment? **(2)**



5. If a client earns R 100 000 per annum now and is guaranteed of a 5% increase over the 12 years to retirement, what will the retirement salary be? **(4)**



**Section 3: 35 marks****Activity 6****(12 marks)**

Mr. Khumalo owns a construction company which builds houses for the RDP. He constructs 20 houses a month and his expenses are as follows:

Building materials: R246 000

Salaries: 60 workers get paid R2000 each

Fixed overheads: R55 000

Variable overheads: R85 000

1. Calculate his Total Production Cost. **(2)**

2. Calculate his unit cost (for one house). **(1)**

3. What must he sell each house for in order to break-even? **(1)**

4. If he sells each house for R50 000, what is his monthly revenue? **(1)**

5. If he sells each house for R50 000, what is his profit on each house? (1)

6. What is his mark-up % on each house? (3)

7. What is his gross profit % on each house? (3)

### Self-Assessment 3

(8)

**Take some time to reflect on what you have learnt in this module and assess your knowledge against the following concepts. Should you be unable to complete the answers, go back to your notes and check on your understanding of the concepts.**

**Define the following: (1 mark each)**

Fixed expenses

Variable expenses

Total product costs

Marginal cost

Revenue

Marginal revenue



Profit

Break-even point.

**Assessment 3**

**(15 marks)**

1. When conducting a cost analysis on a business, what are the two types of costs you would have to investigate? Give 2 examples of each. **(4)**

2. How is a company's revenue worked out? **(2)**

3. What formula is used to calculate profit? **(1)**

4. What does optimization of profit mean? **(1)**

5. A minibus taxi owner pays R3 500 per month to the bank. He pays his assistant a salary of R2000 per month. His fuel and maintenance costs for November are R3000. He charges each customer R5 for their ride and has 2500 customers in November.

a) What are his fixed expenses for November? **(1)**

b) What are his variable expenses for November? **(1)**

c) How many customers would he need to break-even? **(2)**

d) What is his revenue for November? (1)

e) How much profit does he make in November? (2)

**Section 4: 45 marks**

**Activity 7**

(4 marks)

Think of some products or services that South Africa imports and exports.

Imports

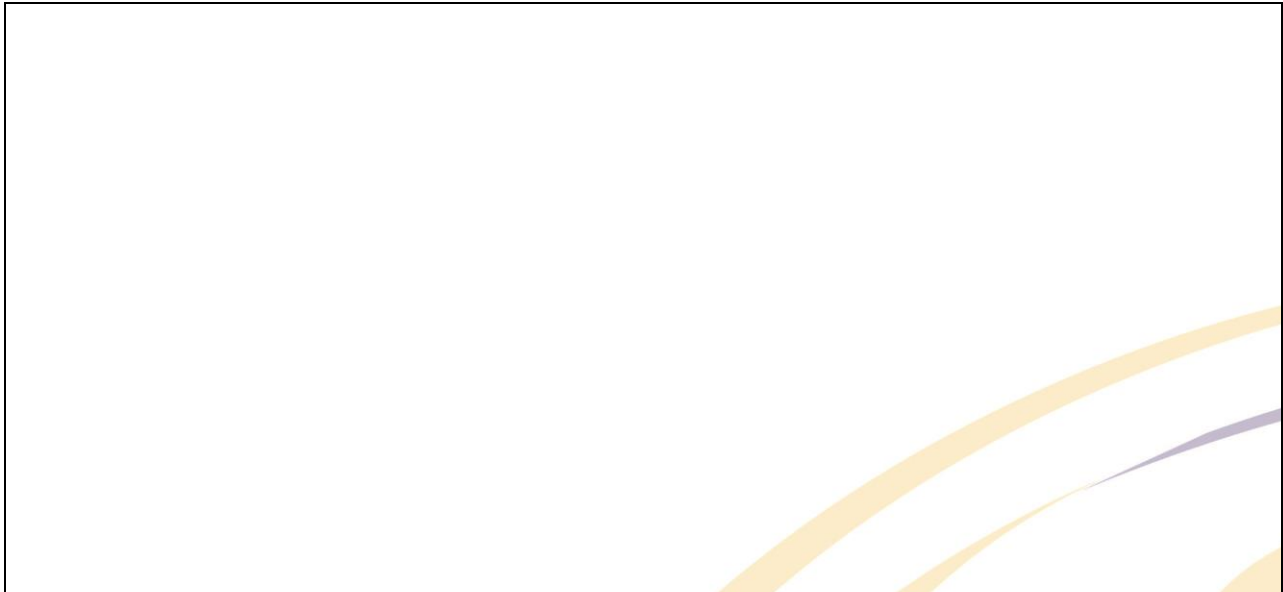
(2)

Exports

(2)

**Group/Individual Discussion****(7 marks)**

Discuss the effects on the South African economy if the rand/dollar exchange rate changes from R6.48 to the dollar to R 5.22 to the dollar. Discuss the advantages and the disadvantages of a stronger rand in terms of imports and exports, particularly oil and petrol. Write down the main points below.

**Activity 8****(9 marks)**

Read the following article from TIME magazine, April 19, 2004.

“South Africa is in the midst of a business revolution as control of the economy shifts from the white minority to the black majority. President Thabo Mbeki often speaks of South Africa’s “two economies”; the first, prosperous, developed and mostly white; the second, poor, underdeveloped and overwhelmingly black.

To get more hands on the economic levers, the government has introduced Black Economic Empowerment (BEE) charters, which encourage companies to train more black workers, promote more black managers, procure supplies from black firms, and sell ownership stakes to black investors. In many ways, the future of South Africa depends on a successful handover. If it fails, the country will remain one of the most unequal in the world, and economic growth is likely to stagnate as crime and poverty grow. Make it work and South Africa’s huge economic engine could help rev up the entire continent.

By the measures of South Africa’s first economy, the ANC government has done a good job. Ten years ago the country was in its 3<sup>rd</sup> decade of double –digit inflation. The rich were spending their money overseas and the apartheid government was running a massive deficit. These days, most indicators look better. South Africa is experiencing the longest period of uninterrupted growth in a half-century; the inflation rate is a respectable 3.5%. Some 30 000 people applied to bring home millions of dollars in

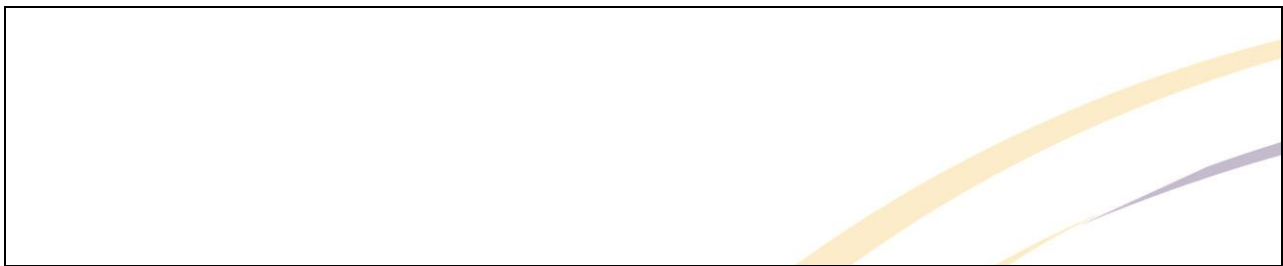
overseas assets as part of a recent tax amnesty, and the budget deficit is down to 3% of GDP. South Africa has a better credit rating than Brazil or India.

But South Africa's second economy has fared far worse. True, the government has built 1.6 million new houses and connected millions of people to the national power, water and telephone grids. But poverty remains stubbornly stuck at around 45%.

Unemployment has jumped from 19% in 1994 to 31% last year. Economic growth is steadier, though only half the minimum 6% per year economists' estimate is needed to fuse Mbeki's two economies into one."

Answer the following questions on the article:

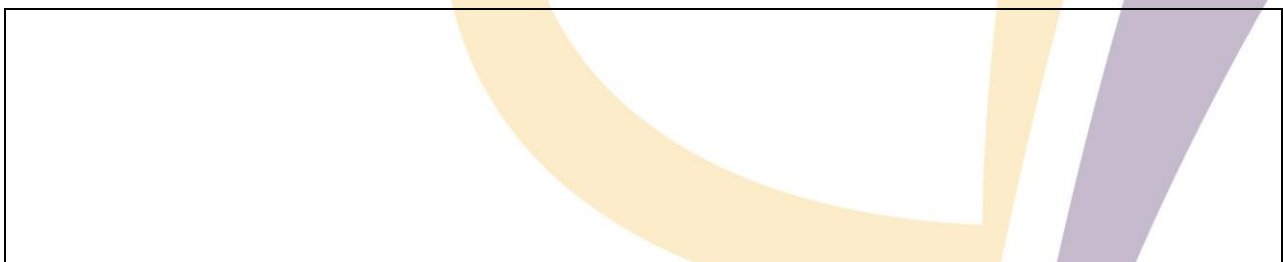
1. Describe South Africa's two economies, spoken about by Thabo Mbeki. **(2)**



2. Give 5 positive economic developments brought about by the ANC government. **(5)**



3. According to the article, "South Africa's second economy has fared far worse." Do you agree? Support your answer with mathematical statistics from the article. **(2)**



**Activity 9****(10 marks)**

In the book sponsored by First National Bank called “South Africa 2014: The Story of our Future”, the prediction is made that “The rising middle class will spur investment”. Read the following excerpt from the book.

“The life of the average South African has improved dramatically in the last 10 years. the growth in the white goods market (from electrical stoves to fridges) corresponds with the improvement in the Living Standards Measure (LSM).

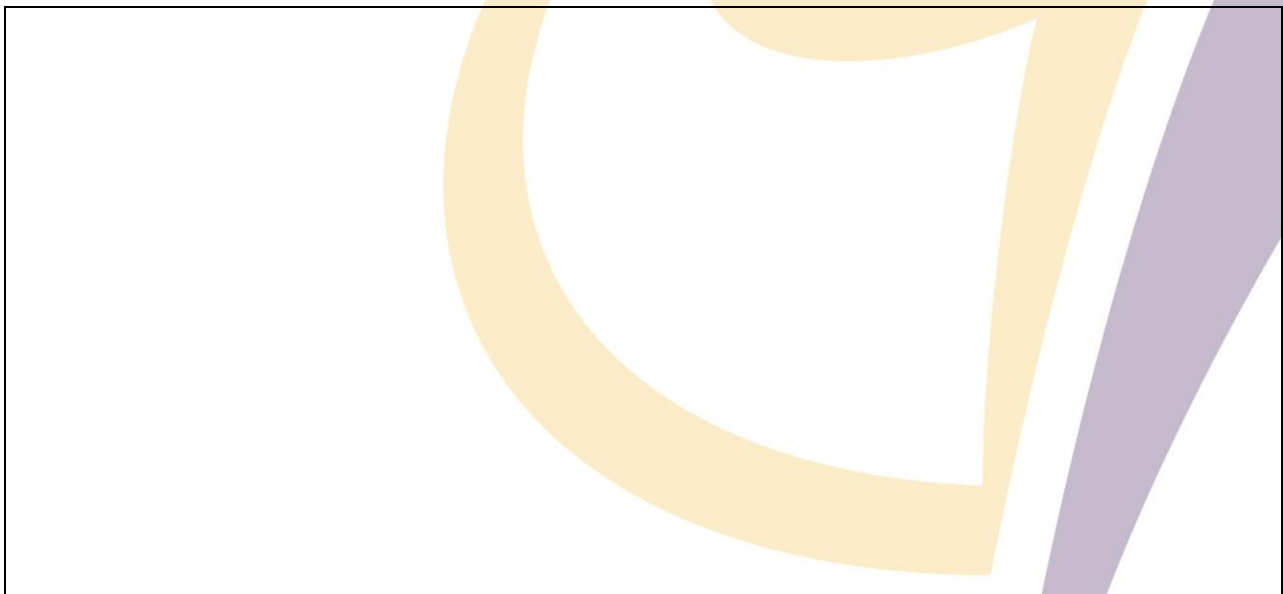
Black Economic Empowerment is now entering its third phase (broad-based empowerment) and, despite criticism, the progress we are making is setting world benchmarks in economic empowerment, and many corporates are coming to the party in terms of their Corporate Social Investment programmes.

South Africa leads the way on using empowerment to uplift local communities at grass-roots level, and providing women with access to Business and Government (we rank 8<sup>th</sup> in the world for seats held by women in Parliament). The rise of a substantial black middle class will lead to political stability – cementing South Africa’s political transformation and proving that our new democracy works. It will also create a larger consumer market place and so encourage investment. a wealthier South Africa , along with the successful efforts on the part of Nepad, will in turn make Southern Africa a more attractive destination for foreign investment.”

In groups, debate the merits of Black Economic Empowerment and its effect on South Africa’s economy. Use the above extract and the TIMES article from Exercise 8, as well as any additional information you have, to support your arguments.

Write some of your debating points in the space.

Points raised during the debate on the merits of Black Economic Empowerment and its effect on South Africa’s economy.



**Self-Assessment 4****(6)**

Take some time to reflect on what you have learnt in this module and assess your knowledge against the following concepts. Should you be unable to complete the answers, go back to your notes and check on your understanding of the concepts.

**Briefly explain the following: (1 mark each)**

Imports and exports

Balance of trade

Exchange rates

Globalisation

## Inflation

## Monetary Policy

### Assessment 4

(9 marks)

Circle the correct answers in the table below:

1. During an upswing in the economy which one of the following will **not** occur:
  - a) Income from exports rises
  - b) Interest rates rise
  - c) Consumer spending rises
  - d) Employment rates rise
  
2. The South African Reserve Bank is the Banker to the SA Government.
  - a) True
  - b) False
  
3. The SA Reserve Bank is a private company and therefore not under the control of the SA Government.
  - a) True
  - b) False
  
4. If the SA Reserve Bank wishes to stop the decline of the SA Rand against the dollar, which one of the following actions will have the desired direct effect?
  - a) Increase personal income tax



- b) Increase interest rates
  - c) Increase sales of dollars
  - d) Increase custom duties
5. Which one of the following actions does not bring in any foreign currency?
- a) Increased tourism
  - b) Exporting of gold
  - c) Importing of crude oil
  - d) International sports events in SA
6. Which one of the following will benefit from a decrease in the value of the SA Rand?
- a) The fuel price
  - b) The gold price
  - c) Importers
7. Which one of the following will benefit from a strengthening in the SA Rand?
- a) Tourism
  - b) The gold price
  - c) Importers
8. Socio-political instability in SA will lead to a weakening Rand.
- a) True
  - b) False
9. Demand - pull inflation occurs when
- a) Production costs increase without an accompanying increase in output
  - b) There is an increase in demand for goods
  - c) Money is more freely available for spending
  - d) Both (b) and (c)

**Answer Sheet**

Question	Answer			
1	a	b	c	d
2	a	b		
3	a	b		
4	a	b	c	d
5	a	b	c	d
6	a	b	c	
7	a	b	c	
8	a	b		
9	a	b	c	d



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**SOUTH AFRICAN QUALIFICATIONS AUTHORITY  
REGISTERED UNIT STANDARD:**

**Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues**

<b>SAQA US ID</b>	<b>UNIT STANDARD TITLE</b>			
7468	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues			
<b>ORIGINATOR</b>		<b>ORIGINATING PROVIDER</b>		
SGB Math Literacy, Math, Math Sciences L 2 -4				
<b>QUALITY ASSURING BODY</b>				
-				
<b>FIELD</b>			<b>SUBFIELD</b>	
Field 10 - Physical, Mathematical, Computer and Life Sciences			Mathematical Sciences	
<b>ABET BAND</b>	<b>UNIT STANDARD TYPE</b>	<b>OLD NQF LEVEL</b>	<b>NEW NQF LEVEL</b>	<b>CREDITS</b>
Undefined	Regular-Fundamental	Level 4	NQF Level 04	6
<b>REGISTRATION STATUS</b>		<b>REGISTRATION START DATE</b>	<b>REGISTRATION END DATE</b>	<b>SAQA DECISION NUMBER</b>
Reregistered		2009-07-01	2012-06-30	SAQA 0480/09
<b>LAST DATE FOR ENROLMENT</b>		<b>LAST DATE FOR ACHIEVEMENT</b>		
2013-06-30		2016-06-30		

In all of the tables in this document, both the old and the new NQF Levels are shown. In the text (purpose statements, qualification rules, etc), any reference to NQF Levels are to the old levels unless specifically stated otherwise.

This unit standard does not replace any other unit standard and is not replaced by any other unit standard.

### **PURPOSE OF THE UNIT STANDARD**

This unit standard will be useful to people who aim to achieve recognition at some level in Further Education and Training or to meet the Fundamental requirement of a wide range of qualifications registered on the National Qualifications Framework.

People credited with this unit standard are able to:

- Use mathematics to plan and control financial instruments including insurance and assurance, unit trusts, stock exchange dealings, options, futures and bonds
- Use simple and compound interest to make sense of and define a variety of situations including mortgage loans, hire purchase, present values, annuities and sinking funds
- Investigate various aspects of costs and revenue including marginal costs, marginal revenue and optimisation of profit
- Use mathematics to debate aspects of the national and global economy, including tax, productivity and the equitable distribution of resources.

### **LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING**

The credit value is based on the assumption that people starting to learn towards this unit standard are competent in Mathematics and Communications at NQF level 3.

### **UNIT STANDARD RANGE**

Range statements are provided for specific outcomes and assessment criteria as needed.

### **Specific Outcomes and Assessment Criteria:**

#### **SPECIFIC OUTCOME 1**

Use mathematics to plan and control financial instruments.

#### **OUTCOME RANGE**

- insurance and assurance, unit trusts, stock exchange dealings, options, futures and bonds.

**ASSESSMENT CRITERIA****ASSESSMENT CRITERION 1**

1. Plans are sufficient to insure effective control of financial instruments.

**ASSESSMENT CRITERION 2**

2. Calculations are carried out using computational tools efficiently and correctly and solutions obtained are verified in terms of the context.

**ASSESSMENT CRITERION 3**

3. Measures used for control purposes are appropriate to the need and are in line with control plans.

**SPECIFIC OUTCOME 2**

Use simple and compound interest to make sense of and define a variety of situations.

**OUTCOME RANGE**

mortgage loans, hire purchase, present values, annuities and sinking funds.

**ASSESSMENT CRITERIA****ASSESSMENT CRITERION 1**

1. The differences between simple and compound interest are described in terms of their common applications and effects.

**ASSESSMENT CRITERION 2**

2. Methods of calculation are appropriate to the problem types.

**ASSESSMENT CRITERION 3**

3. Computational tools are used efficiently and correctly and solutions obtained are verified in terms of the context or problem.

**ASSESSMENT CRITERION 4**

4. Solutions to calculations are used effectively to define the changes over a period of time.

**SPECIFIC OUTCOME 3**

Investigate various aspects of costs and revenue.

**OUTCOME RANGE**

Aspects of costs and revenue include:

- marginal costs, marginal revenue and optimisation of profit

**ASSESSMENT CRITERIA****ASSESSMENT CRITERION 1**

1. Values are calculated correctly.

**ASSESSMENT CRITERION 2**

2. Mathematical tools and systems are used effectively to determine and describe the relationships between the various aspects of cost and revenue.

**ASSESSMENT CRITERION 3**

3. Terminology is used in the correct context.

**ASSESSMENT CRITERION 4**

4. Reasonable methods are described for the control of costs and optimisation of profits in relation to given data.

**SPECIFIC OUTCOME 4**

Use mathematics to debate aspects of the national and global economy.

**OUTCOME RANGE**

Aspects include:

- exchange rates, imports, exports, comparative effectiveness of currency in relation to remuneration, monetary policy and the control of inflation.

**ASSESSMENT CRITERIA****ASSESSMENT CRITERION 1**

1. Values are calculated correctly.

**ASSESSMENT CRITERION 2**

2. Mathematical tools and systems are used effectively to determine, compare and describe aspects of the national and global economy.

**ASSESSMENT CRITERION 3**

3. Debating points are based on well-reasoned arguments and are supported by mathematical information.



### **UNIT STANDARD ACCREDITATION AND MODERATION OPTIONS**

- This Unit Standard will be assessed by an assessor and moderated by a moderator, registered with the relevant accredited ETQA responsible for the quality assurance of this Unit Standard.
- Any institution offering learning that will enable achievement of this Unit Standard must be accredited as a provider through the appropriate quality assuring ETQA, or Learning Programme approval with an ETQA that has a Memorandum of Understanding with the quality assuring ETQA.
- Verification (external moderation) of assessment and moderation by the provider, will be conducted by the relevant quality assuring ETQA according to the moderation guidelines in the relevant Qualification and the agreed ETQA policy and procedures.
- An individual wishing to be assessed through RPL against this Unit Standard, may apply to an assessment agency or provider institution accredited by the relevant quality assuring ETQA, or by an ETQA that has a formal agreement/accreditation with the relevant quality assuring ETQA.

### **UNIT STANDARD ESSENTIAL EMBEDDED KNOWLEDGE**

The following essential embedded knowledge will be assessed through assessment of the specific outcomes in terms of the stipulated assessment criteria. Candidates are unlikely to achieve all the specific outcomes, to the standards described in the assessment criteria, without knowledge of the listed embedded knowledge. This means that the possession or lack of the knowledge can be inferred directly from the quality of the candidate's performance against the standards.

- Budgets
- Terminology and definitions associated with financial situations
- Estimation and approximation
- Compound increase and decrease

### **Critical Cross-field Outcomes (CCFO):**

#### **UNIT STANDARD CCFO IDENTIFYING**

- Identify and solve problems using critical and creative thinking:  
Solving a variety of numerical and financial problems
- Use mathematics:  
Use mathematics to analyse, describe and represent financial situations and to

solve problems.

### **UNIT STANDARD CCFO COLLECTING**

Collect, analyse, organise and critically evaluate information:  
Gather, organise, evaluate and interpret financial information to plan and make provision for monitoring budgets and other financial situations.

### **UNIT STANDARD CCFO COMMUNICATING**

Communicate effectively:  
Use everyday language and mathematical language to describe relationships, processes and problem solving methods.

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