



**1<sup>st</sup> SEM. 2010/2011**

**page 1 of 3**

**UNIVERSITY OF SWAZILAND**

**Supplementary EXAMINATION PAPER**

**PROGRAMME:** BSc. in Agricultural Economics and  
Agribusiness Management Year I  
BSc. in Agricultural Education Year I  
BSc. in Agronomy Year I  
BSc. in Animal Science Year I  
BSc. in Food Science, Nutrition and Technology Year I  
BSc. in consumer science Year I  
BSc. in Consumer science education Year I  
BSc. in Horticulture Year I  
BSc. in Agricultural & bios stems Engineering Year I  
BSc. in Textiles Apparel Design and Management Year I

**COURSE CODE:** AEM 101

**TITLE OF PAPER:** MATHEMATICS

**TIME ALLOWED:** 2:00 HOURS

**INSTRUCTION:** ANSWER ALL QUESTIONS

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY  
THE CHIEF INVIGILATOR**

**Question 1**

1.1 Calculate the selling price when

- a) Cost price is E5 and profit per cent is 20%  
b) Cost price is E3.75 and profit is 16%. (10 marks)

1.2 Two taps are used to fill a tank which has a capacity of 600 litres. If it takes 16 minutes to fill the tank and one tap delivers water at twice the rate of the other find how many litres per minute each tap delivers? (10 marks)

1.3 Find the solution set of  $2^x = 32$  (10 marks)

**Question 2**

2.1. Find the solution set of system of simultaneous equation.

$$\begin{aligned} 3x - 5y &= 44 \\ 5x + 7y &= 12 \end{aligned} \quad (10 \text{ marks})$$

2.2 If  $\frac{3a+b}{3b-2a} = 4$ , calculate the value of a/b? (10 marks)

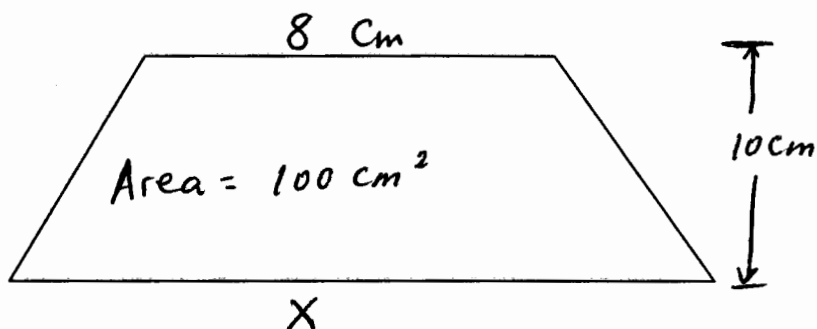
2.3 Find the solution set of logarithmic equation. (10 marks)

$$\log_2^{(x-3)} - 2 \log_2^2 = 8$$

**Question 3**

3.1 In the figure below, find x.

(10 marks)

3.2 If  $\tan A = \frac{3}{4}$  then find  $\sin A$  and  $\cos A$ ?

(10 marks)

3.3 Given that  $y = 3x^2 + x + 5$ , calculate

3.31 The gradient of the tangent to the curve of y at the point

Where  $x = 1$ .

(5 marks)

3.33 The value of x for which y has its minimum value. (5 marks)

3.4 Evaluate  $\int_0^1 x^2 + 4x - 7 dx$ 

(10 marks)

**END OF PAPER**