

Sir Arthur Lewis Community College
DIVISION OF AGRICULTURE

ASSOCIATE DEGREE IN GENERAL AGRICULTURE
2013/14 END OF SEMESTER ONE EXAMINATION



COURSE: AGRICULTURAL MATHEMATICS (AGM105)

DECEMBER 2013

ANSWER ALL QUESTIONS

TIME: 2 ½ HOURS

#M74

1. Find the value of the following when $a = 2$ $b = -1$ $c = 3$
(i) $a(b - c)$ (ii) $3b^2 - 2ac$ (5 marks)
2. (a) Express the following ratios in their simplest form
(i) 9:12 (ii) 8:10 (iii) 15:20 (3 marks)
(b) \$60 000 is shared between Tom, John and Sean in the ratio of 2:3:5.
How much does each person get? (4 marks)
3. Expand and simplify the following
(i) $m(3 + n)$ (2 marks)
(ii) $-5a(2m - 6n)$ (2 marks)
(iii) $(2x + 1)(3x - 4)$ (3 marks)
4. Factorize the following expressions
(i) $5ab - 4b$ (2 marks)
(ii) $x^2 + 9x + 20$ (3 marks)
(iii) $2x^2 + 6x - 8$ (3 marks)
(iv) $x^2 - 25$ (3 marks)
(v) $4x^2 - 4$ (3 marks)
5. Solve the following simultaneous equations:
(i) $5x - y = 7$
 $3x + y = 9$ (4 marks)
(ii) $2x + 3y = -1$
 $3x - 2y = 5$ (5 marks)
6. Express the following statements in logarithmic form:
i) $3^4 = 81$ ii) $(1/6) = 36^{-1/2}$ iii) $5^{-2} = 1/25$
iv) $9^{2/3} = 27$ (4 marks)
7. Express in exponential form:
i) $\log_2 32 = 5$ ii) $\log_2 128 = 7$ iii) $\log_3 \frac{1}{9} = -2$
iv) $\log_3 a = b$ (4 marks)
8. Evaluate:
i) $\log_2 32$ ii) $\log_4 64$ iii) $\log_3 27$ (6 marks)

9. The table below shows the distribution of the lifetimes (measured to the nearest hour) of a sample of 100 light bulbs.

Life time (to the nearest hour)	Frequency
66 -70	15
71 - 75	27
76 -80	9
81 - 85	45
86 - 90	4

Required

- (a) Calculate the mean, mode, median and standard deviation (13 marks)
- (b) Using the data above, draw a less than Cumulative frequency curve. (4 marks)
- (c) From the graph, find:
- First Quartile
 - Second Quartile
 - Third Quartile
- (3 marks)

10. Use the following information to answer the questions below.

An acre of land is approximately 43 000 sq feet.
 It cost \$200 an hour or part there of to plough land
 It takes 4 hrs to plough one acre of land
 Fencing cost \$5.35 an hour

A vegetable farmer wants to fence and then plough a plot of land 650 feet long by 500 feet wide. He plans to only use 40 000 sq feet and 80 000 sq feet for growing watermelons and pine apples respectively.

- i) How much is it going to cost him to
 (a) plough the land? (b) fence the land? (10 marks)
- ii) What fraction of the land will be used for
 (a) watermelons? (b) pineapples?
 (c) both watermelons and pineapples? (7 marks)
- iii) What percentage of the land is not under cultivation? (3 marks)
- iv) What is the ratio of cultivated land to land which is not cultivated? (4 marks)

**END OF EXAM
 TOTAL MARKS 100**