

VF DAGRI Past Papers



**SIR ARTHUR LEWIS COMMUNITY COLLEGE**  
**DIVISION OF AGRICULTURE**



**Final Exam Semester II – Certificate Students**

**Course:** Elementary Mathematics II - (MAT512)

**Date:** 09/05/2003

**Duration:** 2 Hours

#M14

**Answer all questions**

- A fork costs \$12.00 more than a shovel. The cost of two forks and three shovels is \$619. Using  $x$  to represent the cost in dollars of a shovel,
  - write an algebraic expression for the cost of a shovel
  - write an algebraic expression to represent the cost of the two forks and three shovels
  - solve the equation and hence determine the cost of a fork.
- Given that  $p = 2$ ,  $q = -3$  and  $r = -1$ , find the value of  $\frac{p(q - 2r)}{4p + r}$
  - Given that  $\frac{2x}{5} + \frac{3}{y} = 1$ , express  $y$  in terms of  $x$ .
  - If  $\frac{1}{r} - m = \frac{n}{r}$ , express  $r$  in terms of  $l$ ,  $m$  and  $n$ .
- The coordinates of P and Q are  $(-3, -1)$  and  $(5, 2)$  respectively. X is the mid point of the straight line PQ. Calculate:
  - The length of PQ
  - The gradient of PQ
  - The coordinates of X
  - The equation of PQ
- The table below shows the distribution of 100 tomato seedlings by length in centimeters.
  - Using a scale of 2cm to represent 10 cm on the horizontal axis and 2cm to represent 10 cm on the vertical axis, draw a histogram to illustrate the distribution.
  - Determine the mean and median seedling length
  - What is the probability that a single seedling chosen at random has a length that is less than 70 cm



Length (cm)	Frequency
1-10	3
11-20	5
21-30	6
31-40	12
41-50	14
51-60	17
61-70	28
71-80	9
81-90	4
91-100	2

5. Prepare and complete a table of values of  $y$  for the function  $y = x^2 + 2x - 1$  for the domain  $-4 \leq x \leq 2$ .

- Using a scale of 2cm to represent a unit on each axis, draw a graph of the function using the values in the table
- On the same diagram, draw a graph of the line  $y = 2$  and write down the coordinates where  $y = 2$  cuts the curve.
- Hence solve the equation  $y = x^2 + 2x - 1 = 2$

6. A vertical pole AB is standing on level ground. L is a point on the ground, 60 metres to the east of the pole. The angle of elevation of A from L is  $17^\circ$ .

- Sketch a diagram to show the information above
- calculate the height of the pole
- A point M is 18 metres nearer to the pole than L. Calculate the angle of depression of M from the top of the pole

7.a) For the quadratic equation  $2x^2 - 6x + 1 = 0$ , calculate the values of  $x$  to 2 significant figures

b) Solve the simultaneous equations:

$$2x + 3y = 1$$

$$-x + 2y = -4$$

