

SIR ARTHUR LEWIS COMMUNITY COLLEGE
DIVISION OF AGRICULTURE

Final Exam Semester II – Certificate Students

#MS

Course: Elementary Mathematics II - MAT512

Date: 16/05/2002

Duration: 2 ½ Hours

Answer all questions

1. Using any method, solve the following:

$$6x^2 + 17x - 14 = 0$$

2. Solve the following formulae:

a) Given that $l = -2$, $m = 3$ and $n = 7$, calculate the value of $lm(m - n)$.

b) If $l = \sqrt{\frac{3m}{5}}$, express m in terms of l

3. The equation of a line L is $5x - 2y = 9$.

i. Write the equation of the line in the form $y = mx + c$

ii. State the gradient of the line L

iii. A point (h, h) lies on the line L. Calculate the value of h

4. The table below shows the heights of a sample of seedlings measured to the nearest centimeter.

Height(cm)	1-3	4-6	7-9	10-12	13-15
Frequency	4	14	20	9	3

a) Calculate the number of seedlings in the sample.

b) Calculate the mean height of the sample

c) Draw a histogram to display the data.



5. Solve the simultaneous equation

$$\begin{aligned}4x - 4y &= 2 \\7x + 2y &= 17\end{aligned}$$

6. A plane takes off at an angle of elevation of 17° to the ground. After 25 seconds, the plane has travelled a horizontal distance of 2400 metres.

- Sketch a diagram to represent the information above
- Calculate the height of the plane after 25 seconds

7. Given that $\begin{pmatrix} 2 & -3 \\ 1 & 2 \end{pmatrix} \begin{pmatrix} x \\ -1 \end{pmatrix} = \begin{pmatrix} -2 \\ y \end{pmatrix} + \begin{pmatrix} 3 \\ -1 \end{pmatrix}$, calculate the value of x and y

8. The table below shows the cost of a plot of land over the past 6 years.

Year	1996	1997	1998	1999	2000	2001
Cost (dollars)	10000	30000	36000	30000	34000	50000

- On graph paper, using a scale of 1 cm to represent 1 year on the horizontal axis and 1 cm to represent \$10,000 on the vertical axis, draw a bar chart to represent the data.
- From the bar chart, determine the period during which the cost of a plot of land showed the greatest rate of increase
- State the year during which the cost of land decreased
- Giving reasons, estimate the cost of the land in 2002