Activities of Integration

T_1: Equation of a straight line.

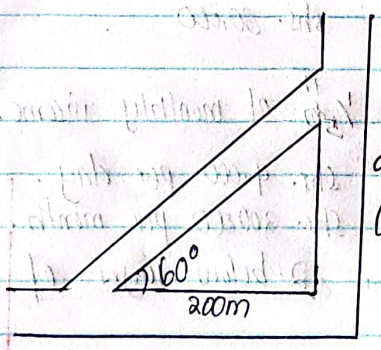
Mr. Malele is a farmer in Busiika. He planted a coffee garden in a square shape with boundaries lines A, B, C and D. Lane C has end points as M(3,5) and N(7,K). It also passes through Q(2,3). Lane B meets lane C at N and its end point is P(x,11).

a) Determine the area of Mr. Malele coffee garden.

b) Mr. Malele plans to plant an eucalyptus tree in the middle of his garden. As a Senior four mathematics student and with your knowledge of equation of a line, help Mr. Malele to identify the exact spot to plant the tree.

T_2: Trigonometry 1.

The corner of a road in a certain village is in the shape of a right angle. During the recent floods, the corner section was washed away when a near by river broke its banks. The district road repair and maintenance department decides to construct a straight road avoiding the corner to link up with the other section of the road after the turn.



In order to evade the damaged corner section, the engineer considers constructing a diagonal road 200 metres away from the corner at an angle of 60° with this road.

Task:

Establish what length of a road the engineer should plan for?

T_3 Data and probability:

In 1978, Most of the hospitals in Uganda were filled with patients of tuberculosis (T.B), with Mulago hospital having the biggest number of patients. The government set control and prevention measures to reduce the spread. In 2018, a study was made at Mulago referral hospital and the

following were the number of cases registered by the laboratory technician in the 10 consecutive weeks.

57	112	71	83	65	25	51	33	62	54
17	54	19	73	45	70	62	51	94	38
23	44	48	20	40	72	86	43	37	28
64	25	59	60	42	37	41	65	89	57
57	57	45	70	69	78	59	35	57	23

Task:

As a statistics student, help the goverment to estimate the average number of patients recorded in the 10 weeks, starting with 10-19 patients as the first interval.

: Business Mathematics:

In a certain country, the following allowances are given to people

Allowances	Amount.
Bachelor / spinster	15% of monthly income.
Marriage	10% of monthly income
Biological child above 10yrs but below 20yrs	shs. 20,000
Biological child who is 10yrs or below	shs. 30,000
Medical allowances	1/50th of monthly income.
Transport	shs. 4,000 per day.
Rent	shs. 200,000 per month.

Micheal is married with 3-children, 2-below 10yrs of age and the other is 14 years old.

Andrew is single but has two dependants aged 11 years and 15 years respectively. Bothe earn a gross monthly salary of shs. 1,600,000. The income structure is given as below.

	Tax rate (%).
1-200,000	10
200,001-500,000	15
Above 500,000	20

Task:

a) Calculate the taxable income for both micheal and Andrew.

b) Calculate the total amount of tax paid by both men.

T5: Ratios and proportions

A survey was carried out by a food aid Agency to ascertain the average monthly expenditure (T) on food by a family in an urban Centre. It was discovered that the expenses were partly constant and partly varies as the number (n) of the children in a family. ~~of~~ 5 ch

A family of 5-children needed shs. 200,000 while a family of 8-children needed shs. 350,000.

Task:

What will be the monthly expenditure on food for a family with six (6) children.

T6: Vectors:

Bagada travelled 600km due North from P to town Q. He then travelled 800km due East from town Q to town R.

Task:

a) Using vectors and translation, how many kilometers would Bagada cover if he had travelled directly from town P to R.

b) If the engine consumes fuel worth shs. 1500 per kilometer. assist Bagada to calculate the extra fuel to cover the Unusual distance to safely reach town R.