PROPOSED SCORING GUIDE FOR UGANDA TEACHERS' EDUCATION CONSULT (UTEC) 2025

UGANDA CERTIFICATE OF EDUCATION

MATHEMATICS

PAPER 1

Item	Scoring criteria	Code	Indicators
1	Total selling price = $250{,}000 + 200{,}000 + 150{,}000 + 125{,}000$	$m_1 - 1$	Adding.
(i)	$= \ shs\ 725{,}000$	$m_1 - 1$	Total selling price.
	The cost price = $(4 \times 100{,}000) = shs\ 400{,}000$	$m_1 - 1$	Total cost price.
	Profit = selling price – cost price $= 725{,}000 - 400{,}000 = shs\ 325{,}000$	$m_1 - 1$	Calculating profit.
	Percentage profit = $\frac{325{,}000}{400{,}000} \times 100 = 81.25\%$	$m_1 - 1$	Substitution
		$m_1 - 1$	Percentage
	The percentage profit increase Mirriam should be expected from the entire stock on the shelves is 81.25%	$AP_1 - 1$	Response to the task
(ii)	Total number of tins for promotion = 54	$I - 1$	Identifying the tins for promotion.
	Ratio of type A to type B = 5 : 4		
	Total ratio = $5 + 4 = 9$	$I - 1$	For ratio.
	Type A = $\frac{5}{9} \times 54 = 30$ tins	$I - 1$	Total ratio.
	Type B = $\frac{4}{9} \times 54 = 24$ tins	$m_1 - 1$	No: of type A tins
		$m_1 - 1$	No: of type B tins
	Maximum number of full boxes = $\frac{total\ number\ of\ tins}{Number\ of\ tins\ in\ each\ box}$	$m_1 - 1$	Substitution
	$= \frac{54}{(5+4)} = 6\ boxes$	$m_1 - 1$	Maximum number of full boxes
	The number of tins of type A and type B used for promotion is 30 tins and 24 tins respectively and hence the maximum number of full boxes is 6 boxes.	$AP_1 - 1$	Response to the task
(iii)	Selling price = $percentage\ decrease \times cost\ price$		
	$= \frac{100 - 20}{100} \times 65{,}000$	$m_1 - 1$	Substitution
	$= shs\ 52{,}000$	$m_1 - 1$	Correct value for selling price
	Each promotion box will be sold at $shs\ 52{,}000$	$AP_1 - 1$	Response to the task

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2 (i)	x | 1 | 2 | 3 | 4 | 5 | $\ldots\ldots n^{th}$ y | 250 | 270 | 290 | 310 | 330 | …… From $U_n = a + (n -) \times d$ First term; $a = 250$ Common difference; $d = 290 - 270 = 20$ $U_n = 250 + (n -) \times 20$ $= 250 + 20n - 20$ $U_n = 230 + 20n$ The expression for the n^{th} term of the sequence is $U_n = 230 + 20n$	$F - 1$ $F - 1$ $m_2 - 1$ $m_2 - 1$ $AP_2 - 1$	For first term of the sequence. For the common difference. Substitution Correct expression Response to the task
(ii)	From $U_n = 230 + 20n$; For the week 10; $n = 10$ So; number of bricks $= 230 + 20 \times 10 = 430\ bricks$ They would sell 430 bricks in the 10	$m_2 - 1$ $m_2 - 1$ $AP_2 - 1$	Substitution Correct value for bricks Response to the task
(b)			
3 (a) (i)	Let N, M and B represents the name of the Nabiryo, Mutesi and Baguma respectively and A, B, C, D to represent maize, millet, sorghum and sim-sim respectively A 4×3 matrix A showing the quantities of cereals sold by each vendor $\begin{matrix} \\ A \\ B \\ C \\ D \end{matrix}\begin{matrix} N & M & B \end{matrix}\begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix} = \begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix}_{4\times3}$	$P - 1$ $A_3 - 1$	Title of the matrix A Matrix A
(ii)	A 1×4 matrix B showing the cost price of cereals sold per kg by each vendor $\begin{matrix} & A & B & C & D \\ Cost\ price & \end{matrix}\begin{pmatrix} 1200 & 1500 & 1000 & 2000 \end{pmatrix}$ $(1200 \quad 1500 \quad 1000 \quad 2000)_{1\times4}$	$P - 1$ $A_3 - 1$	Title of the matrix B Matrix B
(b) (i)	Market cost excluding market tax and feeding cost for each vendor $= (1200 \quad 1500 \quad 1000 \quad 2000)_{1\times4} \times \begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix}_{4\times3}$ $= (66{,}500 \quad 67{,}000 \quad 55{,}500)$	$A_3 - 1$ $A_3 - 1$	Multiplication of matrices $mat\ A \times mat\ B$ Correct multiplication

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	Total expense on feeding and tax = $1{,}500 + 2{,}000 = shs\ 3{,}500$	$A_3 - 1$	Total expenses in feeding and tax
	Matrix for market tax and feeding cost for each vendor $= (3{,}500 \quad 3{,}500 \quad 3{,}500)$	$A_3 - 1$	Matrix for expense for each vendor
	Total Market cost including market tax and feeding cost for each vendor $= (66{,}500 \quad 67{,}000 \quad 55{,}500) + (3{,}500 \quad 3{,}500 \quad 3{,}500)$	$A_3 - 1$	Addition of matrices
	$= (70{,}000 \quad 70{,}500 \quad 59{,}000)$	$A_3 - 1$	Correct value
	The total Market cost including market tax and feeding cost for Nabiryo, Mutesi and Baguma is shs. 70,000, shs. 70,500 and shs. 59,000 respectively	$IN - 1$	Response to the task
(ii)	For Nabiryo's expected sales revenue = items sold × selling price Selling price = cost price + mark-up $= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}300\\300\\300\\300\end{pmatrix} = \begin{pmatrix}1500\\1800\\1300\\2300\end{pmatrix}$	$A_3 - 1$	Selling price for Nabiryo
	Expected sales $= (20 \quad 15 \quad 10 \quad 5) \times \begin{pmatrix}1500\\1800\\1300\\2300\end{pmatrix}$	$A_3 - 1$	Multiplication
	$= (20 \times 1500) + (15 \times 1800) + (10 \times 1300) + (5 \times 2300)$ $= shs\ 81{,}5000$	$A_3 - 1$	Correct answer for expected sales
	For Mutesi's expected sales revenue Selling price $= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}400\\400\\400\\400\end{pmatrix} = \begin{pmatrix}1600\\1900\\1400\\2400\end{pmatrix}$	$A_3 - 1$	Selling price for Mutesi
	Expected sales $= (10 \quad 20 \quad 15 \quad 5) \times \begin{pmatrix}1600\\1900\\1400\\2400\end{pmatrix}$	$A_3 - 1$	Multiplication
	$= (10 \times 1600) + (20 \times 1900) + (15 \times 1400) + (5 \times 2400)$ $= shs\ 87{,}000$	$A_3 - 1$	Correct answer for expected sales
	For Baguma's expected sales revenue Selling price $= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}200\\200\\200\\200\end{pmatrix} = \begin{pmatrix}1400\\1700\\1200\\2200\end{pmatrix}$	$A_3 - 1$	Selling price for Baguma

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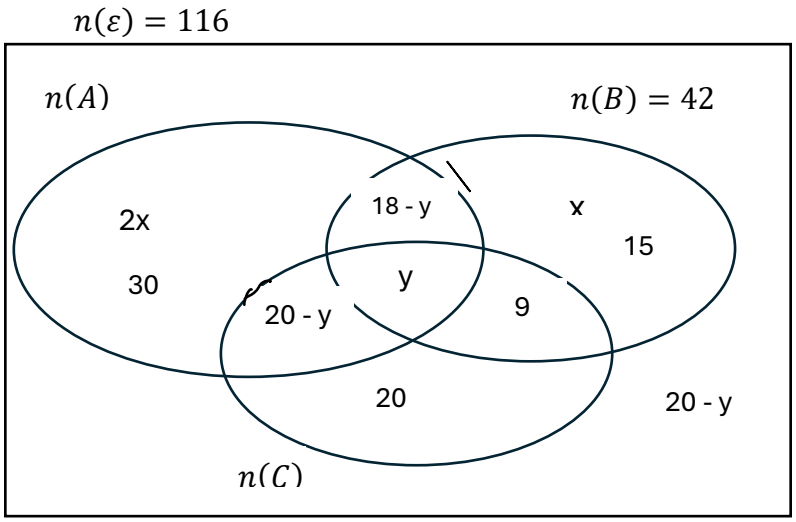
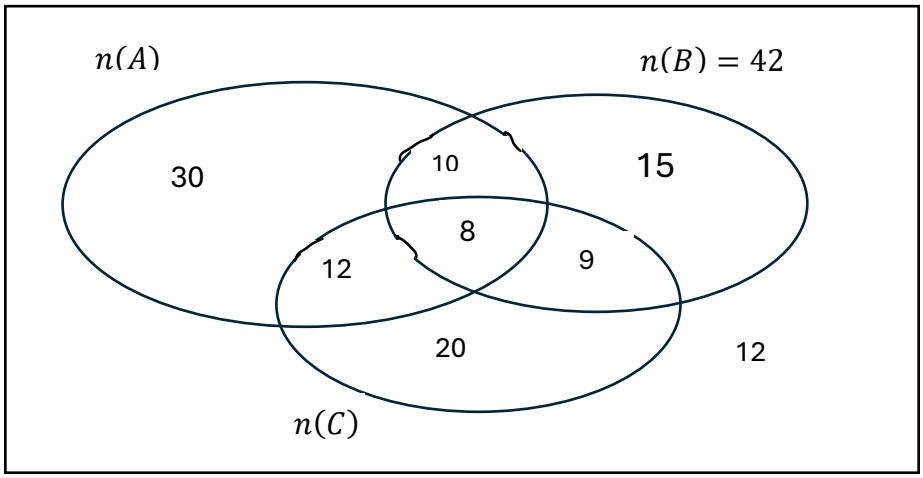
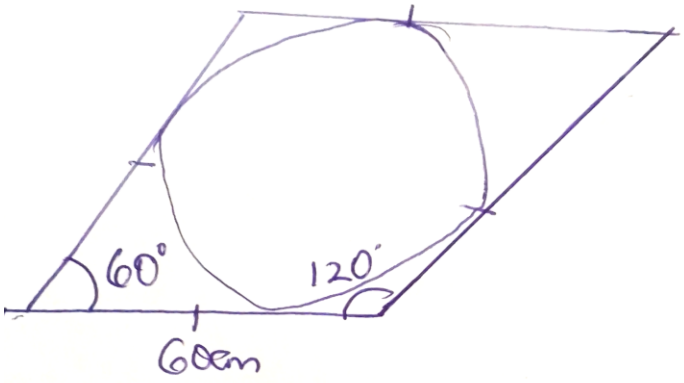
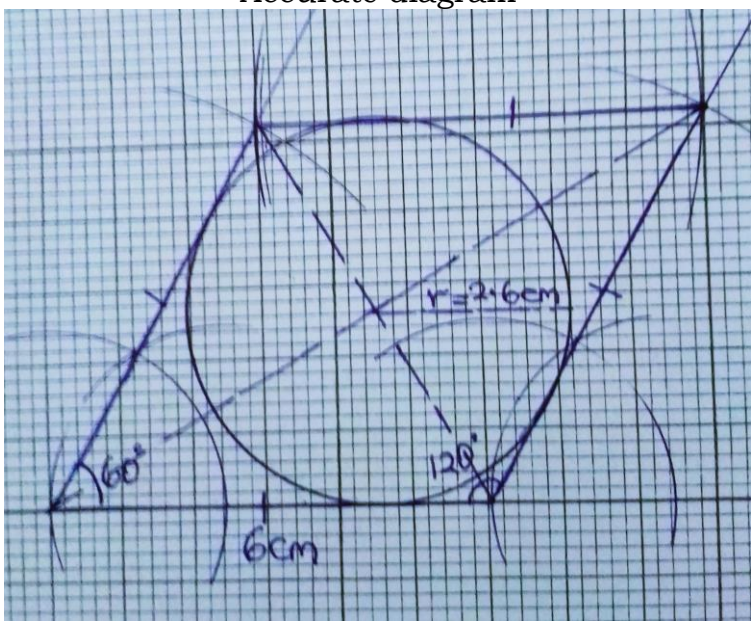
	Expected sales $= (15 \quad 5 \quad 10 \quad 10) \times \begin{pmatrix} 1400 \\ 1700 \\ 1200 \\ 2200 \end{pmatrix}$ $= (15 \times 1400) + (5 \times 1700) + (10 \times 1200) + (10 \times 2200)$ $= shs\ 63{,}500$ The expected sales revenue for each vendor are shs 81,500, shs. 87,000 and shs. 63,500 for Nabiryo, Mutesi and Baguma respectively. $\boldsymbol{Net\ profit\ = expected\ sales\ revenue - cost\ price}$ For Nabiryo's net profit $= 81{,}500 - 70{,}000 = shs.\ 11{,}500$ For Mutesi's net profit $= 87{,}000 - 70{,}500 = shs.\ 16{,}500$ For Baguma's net profit $= 63{,}500 - 59{,}000 = shs\ 4{,}500$ The net profit for Nabiryo, Mutesi and Baguma is $shs.\ 11{,}500, shs.\ 16{,}500\ and\ shs\ 4{,}500$ respectively	$A_3 - 1$ $A_3 - 1$ $IN - 1$ $A_3 - 1$ $A_3 - 1$ $A_3 - 1$ $IN - 1$	Multiplication Correct answer for expected sales Response to the task Nabiryo's net profit Mutesi's net profit Baguma's net profit Response to the task
(c)	✓ Vendors should review their pricing strategy (like Mutesi's mark-up shs. 400) in order to generates the highest profit, suggesting customers are willing to pay for quality or services ✓ Maintain simple records of purchase from suppliers as proof of source if questioned during an inspection. ✓ All vendors must budget for and pay the daily market tax (shs. 1500) without fail.	$IN - 1$	Response to the task
4 (a)	Information given $n(\varepsilon) = 116, n(A \cap C) = 20, n(A \cap B) = 18, \quad n(B \cap C)_{only} = 9,$ $n(B) = 42\ , n(C)_{only} = 20,\ n(A \cap C)_{only} = n(A \cup B \cup C)^1$ Let $n(B)_{only} = x;\ then\ n(A)_{only} = 2x$ Let $n(A \cap B \cap C) = y$	$P - 1$	For analyzing the information given in the scenario

	A Venn diagram showing number of students voting for their class captain.  	$P-1$	Title of the Venn diagram
		$P-1$	For inserting any three given values in the Venn diagram
		A_3-1	For $2X$ and X
		A_3-1	For $20-y$
	$n(B) = 42;\quad 18 - y + y + 9\ + x = 42$		
		A_3-1	Generating the equation
	$x = 15$		
	From	A_3-1	Correct value of x
	$n(\varepsilon) = 116;$ $116 = 30 + 18 - y + y + 20 - y + 20 - y + 9 + 20 + 15$		
	$116 = 132 - \ 2y$	A_3-1	Generating the equation
	$y = \dfrac{-16}{-2}$		
	$y = 8$		
	$n(\varepsilon) = 116$  	A_3-1	Correct value of y
		A_3-1	Complete Venn diagram

	$n(A) = 30 + 10 + 8 + 12$ $= 60$ $n(C) = 12 + 8 + 9 + 20$ $= 49$ The number of students who ticked for A and C respectively is 60 and 49 students	$A_3 - 1$ $A_3 - 1$ $A_3 - 1$ $A_3 - 1$ $IN - 1$	Addition Correct value for $n(A)$ Addition Correct value for $n(C)$ Response to the task
(b)	Andrew is a candidate preferred by the majority. This is because he got 60 ticks which is more than compared to what Badul (42) and Cathy (49) respectively.	$IN - 1$	Response to the task
(c)	Percentage of the votes obtained by Andrew $= \frac{60}{116} \times 100 = 51.72\%$ Percentage of the votes obtained by Badul and Cathy $= 100 - 51.72$ $= 48.28\%$ Andrew got 51.72% which is just above 50% of the votes and almost half of the class did not tick him and therefore he may not lead easily since almost half of the votes (48.28%) of the class may not be fully supportive.	$A_3 - 1$ $A_3 - 1$ $A_3 - 1$ $IN - 1$ $IN - 1$	Substitution Correct value for Andrew's percentage. Correct value for Badul's and Cathy's percentages. Response to the task.
5 **(a)**	Sketch  Using the scale of; 10cm: 1cm Then 60cm = 6cm	$A_4 - 1$ $A_4 - 1$	Sketch Scale and conversion

	Accurate diagram  	$m_4 - 1$ $m_4 - 1$ $m_4 - 1$	Length of the rhombus Angles of 60^0 *and* 120^0 The two angles bisector Circle formed
	Radius, $r = 2.6cm$ $r = (2.6 \times 10) = 26\ cm$ Area of the circle drawn $= \pi r^2$ $= \frac{22}{7} \times (26)^2$ $= 2124.57\ cm^2$ No, this is because the board can also enable Mukasa to make a circular wall clock with an area of $2124.57\ cm^2$ which is less than the required area by $701.43\ cm^2$	$A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	For; $r = 2.6\ cm$ (accept $r = 2.7\ cm$) For; $r = 26\ cm$ (Accept $r = 2.7\ cm$) Substitution For correct value of area Response to the task
(b)	Gross salary $= shs.350{,}000$ Non- taxable income for one worker $= \frac{70{,}000}{2} = shs\ 35{,}000$ Taxable income $= gross\ income\ - non\ taxable\ income$ $= 350{,}000 - 35{,}000$ $= shs.315{,}000$ So, income tax for one worker 1st tax; $= 0$ 2nd tax $= \frac{5}{100} \times (200{,}000 - 100{,}000)$ $= shs.5000$ 3rd tax $= \frac{10}{100} \times (315{,}000 - 200{,}000)$ $= shs.11{,}500$	$A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$	Dividing non-taxable income by 2 Correct value Substitution Correct answer for taxable income for one worker. Manipulating Value of 2nd tax Manipulating Value of 3rd tax

	Total income tax for one worker $= 5000 + 11{,}500$ $= shs.\,16{,}500$ Therefore, total income tax for two workers $= 2 \times 16{,}500$ $shs.\,33{,}000$ The total income tax Mukasa is to remit to the authorities is $shs.\,33{,}000$	$A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $IN - 1$	Addition Correct for income tax Multiplication Correct for income tax for two workers Response to the task
(c)	Net income for one worker $= Gross\ income - each\ income\ tax$ $= 350{,}000 - 16{,}500$ $= shs.\,333{,}500$ The net income Mukasa will pay to each employee after tax is $shs.\,333{,}500$	 $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	 Substitution Correct for net income Response to the task
6 **(a)**	Information given; $n = 3\ years, principal, p = shs\ 200{,}000{,}000$ $rate, r = 9\ \%$ From $Amount;\ A = P\left(1 + \frac{r}{100}\right)^n$ $A = 200{,}000{,}000\left(1 + \frac{9}{100}\right)^3$ $A = shs.\,259{,}005{,}800$ Interest earned $= Amount - Prinicipal$ $= 200{,}000{,}000 - 259{,}005{,}800$ $= shs.\,59{,}005{,}800$ The total amount at the end of 3 years is $shs.\,259{,}005{,}800$ and interest earned is $shs.\,59{,}005{,}800$	 $A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	 Substitution Correct for amount made Substitution Correct for interest earned Response to the task
(b)	Information given on mortgage; Principal, (p) $= shs.\,400,000{,}000$ Rate (r) $6\ \%\ per\ annum$ Time (n) $=\ 5\ years\ in\ equal\ annum\ installments$ From $Amount\ for\ annum\ installment, A = P\left(\frac{r(1+r)^n}{(1+r)^n - 1}\right)$ $= 400{,}000{,}000 \times \left(\frac{\frac{6}{100}\left(1 + \frac{6}{100}\right)^5}{\left(1 + \frac{6}{100}\right)^5 - 1}\right)$	 $A_4 - 1$	 Substitution

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	$= 400{,}000{,}000 \times \left(\frac{0.06(1+0.06)^5}{(1+0.06)^5 - 1}\right)$ $= shs.\,94{,}958{,}560$ So, her annum mortgage installment $= shs.\,94{,}958{,}560$ And total amount payable= $annum\ installment \times number\ of\ years$ $= 94{,}958{,}560 \times 5$ $= shs.\,474{,}792{,}800$ Total amount payable at the end of 5 years is $shs.\,474{,}792{,}800$ and her annum mortgage installment is $shs.\,94{,}958{,}560$	$m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	Correct for annum mortgage installment Multiplication For total payable amount Response to the task
(c) (i)	Delivery van; cost $price = shs.\,60{,}000{,}000, appreciation\ rate = 4\%\ and\ time, n = 3\ years$ From $Appreciation;\ A = P\left(1 + \frac{r}{100}\right)^n$ $A = 60{,}000{,}000\left(1 + \frac{4}{100}\right)^3$ $shs.\,67{,}491{,}840$ Increase in value $= shs.\,(67{,}491{,}840 - 60{,}000{,}000)$ $= shs.\,7{,}491{,}840$ The value of the delivery van has appreciated to $shs.\,67{,}491{,}840$ which by an increase of $shs.\,7{,}491{,}840$	 $A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	 Substitution Appreciated value Substitution Increase in value Response to the task
(ii)	Machinery; $depreciation\ rate = 15\ \%\ ; cost\ price = 120\ million\ and\ time, n = 4\ years$ $depreciation;\ A = P\left(1 - \frac{r}{100}\right)^n$ $= 120{,}000{,}000 \times \left(1 - \frac{15}{100}\right)^4$ $= shs.\ 62{,}640{,}750$ Loss in value after 4 years $= 120{,}000{,}000 - 62{,}640{,}750$ $shs.\,57{,}359{,}250$ The value of machinery depreciated to $shs.\ 62{,}640{,}750$ after 4 years with the total loss in value of $shs.\,57{,}359{,}250$	 $A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	 Substitution depreciated value Substitution loss in value Response to the task

(iii)	From; Annum premium $= value\ of\ a\ good\ \times rate\ of\ premium$ $= \frac{2.5}{100} \times 900{,}000{,}000$ $shs.\,22{,}500{,}000$ Total premium for 5 years $= 22{,}500{,}000 \times 5$ $= shs.\,112{,}500{,}000$ The annum premium is $shs.\,22{,}500{,}000$ and she also pays $shs.\,112{,}500{,}000$ as a total premium over 5 years	$A_4 - 1$ $m_4 - 1$ $A_4 - 1$ $m_4 - 1$ $AP_4 - 1$	Substitution Annum premium value Multiplication Total premium for 5 years Response to the task
(d)	✓ It enables individual and business to acquire high-value assets like real estates, land etc ✓ Facilitate investment in property and business infrastructure and construction. ✓ Mortgage systems help mobilize capital within the financial sector, allowing banks to lend savings for productive investments, which strengthens the entire local economy.	$AP_4 - 1$	Response to the task