HOW TO APPROACH ITEMS.

1. Start with the item you know best.
2. Study the item twice and analyze it
3. Do not waste unnecessary time on any item
4. Start with calculations, draw graphs afterwards.

SAMPLE ITEMS

THEME 1: NUMBERS

ITEM 1

On their Prom party, five students plan to buy their class teacher a gift. The initial plan was that each one buys their own gift to give to the class teacher but later they realized that If they do it as a group would be cheaper. So they mobilized themselves and each person contributed as follows;

Student A contributed one hundred thirty-three thousand two hundred fifty shillings.

B contributed $1\frac{1}{2}$ of the amount of A.

C contributed 20% more than that of A.

D contributed a fraction which is $\frac{1}{5}$ less that of B of the amount of A contributed

. E She contributed the balance required to make she 800,000/= which was the cost of the gift. On the day of Prom, the money was given to student E to pick the gift from the nearby shop.

From school, she used a boda-boda moving at 10kmh-1, they moved for 30 minutes due east and then 15 minutes due north to reach the shop

Tasks:

a). Help to direct another student to locate the shop from school in coordinate form.

b) What amount did each student contributed and who of the five contributed more money.

c) In which other way could they contribute the money more fairly and how much would each contribute that way?

ITEM 2

On Wednesday 01, May, 2024, Aunt Nyanya a tomato seller in a market purchased 8 packs of polythene bags of tomatoes, each containing 10 tomatoes from a farmer. She then sold a-quarter of the total number of packs before meeting her longtime friend Peter who decided to take her out for coffee at a hotel. The she left the tomatoes with a colleague in the market.

At the hotel Peter ordered for 2 cups of tea each costing five thousand one hundred shillings and 2 plates of food each at she 20,000/=. While enjoying the meal, Peter told her that he comes to the hotel gym every after 4 days and she also decided to be coming there every after a week to exercise.

On her departure, Peter gave her shs. 20,000/= for transport and on reaching the market, she found a sixth of the remaining

packs of tomatoes damaged and could not be sold. She decided to re-park the un-damaged ones in new packs of five tomatoes to sell in small quantities that are preferred by customer. Tasks:

a). How many packs of fives and five fives did aunt Nyanya get after repacking?

b). What percentage of the number of tomatoes got damaged?

c). Help Peter and Aunt Nyanya to know when they will meet again at the hotel.

d). How much money (in words) did Peter spend on the Outing?

THEME 2: PATTERNS AND ALGEBRA

ITEM 3

A certain number of people agreed to contribute an equal amount of money to buy books worth Ugx.12,000 for a school library. After sometime, five of them backed out and this made one of them that remained suggest that each should contribute Ugx.100 in excess. Their collection enabled them to buy books worth Ugx 2000 more than originally expected.

However, after buying these books, they got other funds and found it necessary to stock more books for the library. To transport these additional books, they used two means of transport, a Boda-boda and a Tuku-tuku. When a Boda-boda had made four trips and a Tuku tuku three they had transported 116 books altogether while when a Boda-boda had

made five trips and a Tuku-tuku 2 trips they had transported 110 books altogether.

a) How many people really made.

b) How much each was originally going to contribute for the buying of books?

c) How many books does each of the two means of transport carries per trip?

ITEM 4

You have friends who manufacture televisions and radios. During Christmas season, they want to sell at least 100 of their televisions and at least 150 of their radios. They have also found that they cannot sell more than 600 televisions and radios combined. They wish to maximize sales by selling each television at a profit of Ugx 90,000 and each radio at a profit of 30,000 but they do not know the number of televisions and radios to sell to fulfill their wish.

Task:

a) Write mathematical statements that show the relation between televisions and radios.

b) Show the feasible region of the relation on the Cartesian plane.

c) Help your friends to determine how many of each type should be sold to make the maximum profit.

ITEM 5

A fashion designer makes two types of designs; one design on trousers and another design on dresses. He takes 3 hours to make a design on a trouser and 4 hours to make a design on a dress. He works for a maximum of 120 hours to make designs on trouser and dresses. It costs him shs 4000 to make a design on a trouser and shs 1500 to make a design on a dress. The total cost does not exceed shs 90,000. He must make designs on trousers for at least 8 trousers and make designs on dresses for more than 12 dresses. He makes a profit of shs 400 on each trouser and shs 700 on each dress.

Task:

a) Write down mathematical statements that shows the relationship between the trousers and dresses. b) Show the feasible region of the relation on the Cartesian plane.

c) Help the designer to determine the maximum possible profit he makes.

ITEM 6

A trader in Mpigi town who deals in Electronics specializes in importation of Televisions (TVs) from JAPAN on a weekly basis. He particularly imports two types of TVs i.e Sonny and Global-Star. In the first week of August, 2024, he wants to import a minimum of 2 Global–star TVs. Also he wants to import more Sonny TVs than Global-star TVs. Due to the shipping expenses and taxes, he cannot import more than 10 TVs a week. A Global

– star TV is to be sold for 1.5 million while as Sonny TV to be sold for 1 million. More than 8 million must be realized from the sales, if profits are to be made.

Task:

a).

a). Help the trader realize the number of TVs of each type he can import for a maximum profit.

b) If a trader is to remain in business, what is the least number of TV's he can import and still make a profit?

c). Given that the shipping space provided to him measures 12m by 4m, work out an equation that models the number of square meters for each TV for a maximum profit.

THEME 3: DATA AND PROBABILITY

ITEM 7

A Company holds daily morning briefings at 8:05 am for all its workers who walk to work from different places of residence. The company supervisor notices that some workers miss important communication because they arrive late. He decided to collect data about their time of arrival so that he can make necessary adjustments and also help some of them to become residents near the company premises. The collected data of their time of arrival in minutes from the start of the briefing was as follow;

52 49 11 16 32 28 32 55 38 24

15 23 33 20 40 39 22 37 53 30

29 58 38 44 31 21 18 39 25 47

51 49 35 24 47 34 48 44 55 19

27 38 41 59 33 52 27 36 46 46

32 28 47 54 34 21 58 37 26 42

Task

(a) With a reason based on the calculation from the data above, suggest the appropriate time when the morning briefs should always start.

(b) The company manager suggests that the first 25% of the workers be given transport refund, between 25% and 75% be given accommodation and the rest be stopped. Determine the maximum time of arrival one should not exceed to qualify for;

(i) Transport refund

(ii) Accommodation

(c) How many workers would be stopped from work.

ITEM 8

A school is wishing to offer bursaries to sports men and women as long as more than 60% play at least one of the games in Football F, Net ball N, and Basket ball B while more than 40% must know how to play at least two of the three games. It was discovered that out of 100 students who had applied, 40 student played football, 45 played Netball while 50 played

Basket ball. 24, 18 and 19 students played F and N, F and B and B and N respectively. 18 students applied but did not know how to play any of the three games.

Task

a) Basing on the calculation from the information given, advise whether the school should offer sports bursaries.

b) Calculate the probability that a student picked at random played only one sport game.

ITEM 9:

A parent intends to make shopping of scholastic materials for his children who are going back to school for a new term by the names of Jane, Mary and Darin. They budgeted as below basing on the list of requirements that they were given by their class teachers. - Jane: 6 exercise, 3 pencils, 2 Graph books, 3 pens - Mary: 3 pencils, 1 Graph book, 6 exercise books, 3 pens - Darine: 2 Graph books, 4 exercise books, 3 pencils and 5 pens At that time the prices were 1 Graph book shs 2000, 1 pencil shs 100, 1 exercise book shs 1,500 and 1 pen shs 500. On reaching school they found out that the canteen manager had increased prices of the items by 10% and also they found out that the school administration had decided that on each item listed they should increase the number for each by 2 since school administration had decided that the students extend by two weeks when the term ends in order to compensate for the time students had lost the previous term. Before leaving their

home, they were given by their father shs 200, 800/= so that they can finish the clearing process at school and then after wards they share equally the remaining money to be used as their pocket money.

Task:

a). Assuming they were to buy the items before going to school, using the matrices help the father to determine how much he would give to each child.

b) By use of matrices determine how much each child paid to the canteen attendant in order to acquire the items.

c)Help the children determine how much each shared as pocket money after buying the items from the school canteen.

ITEM 11

An international businessman who operates in United States of America (USA) has recently relocated his family to your village and settled near your home as your immediate neighbour. After a week, his wife realizes that her P.5 boy needs a boarding school. Your Cousin who is well informed about primary education offers to help her by driving them as they search to find a better school for her child. He drives them to the nearest Pearl Hill Junior school 40km away due East of their home. Your Cousin drives at his usual average speed of $\mathbf{40}$ $\boldsymbol{kmh}$-1. His car's fuel consumption is 8 km/litre. The Boy's father who is in USA, agrees to refund your cousin all the fuel costs and allowance of 5 US dollar per hour spent during the

entire process and Journey. A litre of Petrol costs shs 5,750/= and 1 US dollar = Ug.shs 3,800/= and Uganda is 7 hours ahead of USA. On reaching Pearl Hill Junior School at 9:20 am, she finds out that it is a purely day school. After 15 minutes of interaction, the Headteacher refers them to Full Care Primary School (FPS) a good boarding school in the locality and gives your cousin the following directions

- From Pearl Hill Junior School, take the southern direction and reach the Community Library that is 70 km away.
- From there, then take the South Eastern road and drive for half an hour to reach Full Care Primary School (FPS). After reaching FPS, the boy was subjected to an interview for $1\frac{1}{4}$ ***hours*** and later admitted. Before leaving FPS, they are informed of a direct route back home which they take after a quarter of an hour of consultation.

Task

a) (i) Describe the direction of your neighbour's home from Full Care Primary School.

(ii) At what time would they have reached Full Care Primary School after leaving Pearl Hill Junior School.

b) Help your cousin to determine;

i) When he should communicate with the boy's father in USA upon reaching home immediately after the journey. (Give the time basing on USA time-zone)

ii) The duration of the entire journey

iii) How much money in US dollars he should demand from the boy's father upon returning home.

REFERENCES

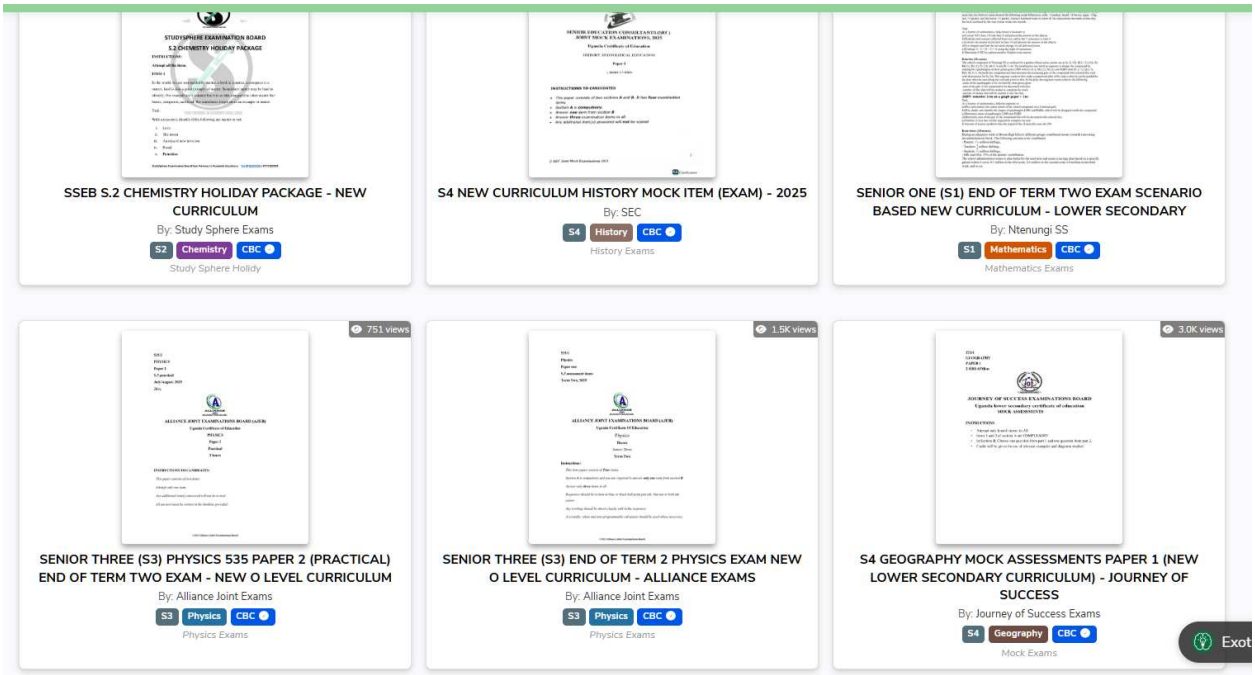
1. STECO math resources
2. STECO examination items
3. STECO sample items with solutions.
4. STECO online lessons (0775669999)

SUCCESS HAS NO FORMULA, DO YOUR BEST AND PEOPLE MAY LIKE IT

END

THANK YOU

SUCCESS IN YOUR UCE EXAMS.



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