UNEB UCE 2024
ITEM SOLUTIONS
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ITEM 1.

$profit = 1{,}500{,}000$ shs.

$Ratio = 4{,}000{,}000 : 6{,}000{,}000 = 2:3.$

$Moses = \frac{3}{5} \times 1{,}500{,}000 = shs900{,}000.$

(a) $moses\ re-invested = 900{,}000shs.$

(b) $\%increase\ in\ the\ no.of\ birds = \frac{2500-2000}{2000} \times 100 = 25.$

(c)

3	7	15
5	7	5
7	7	1
	1	1

$l.c.m = 3 \times 5 \times 7 = 105.$

$(105 + 1) - 31 - 30 - 31 = 14days.$

the date will be 14th June 2024.

ITEM 2.

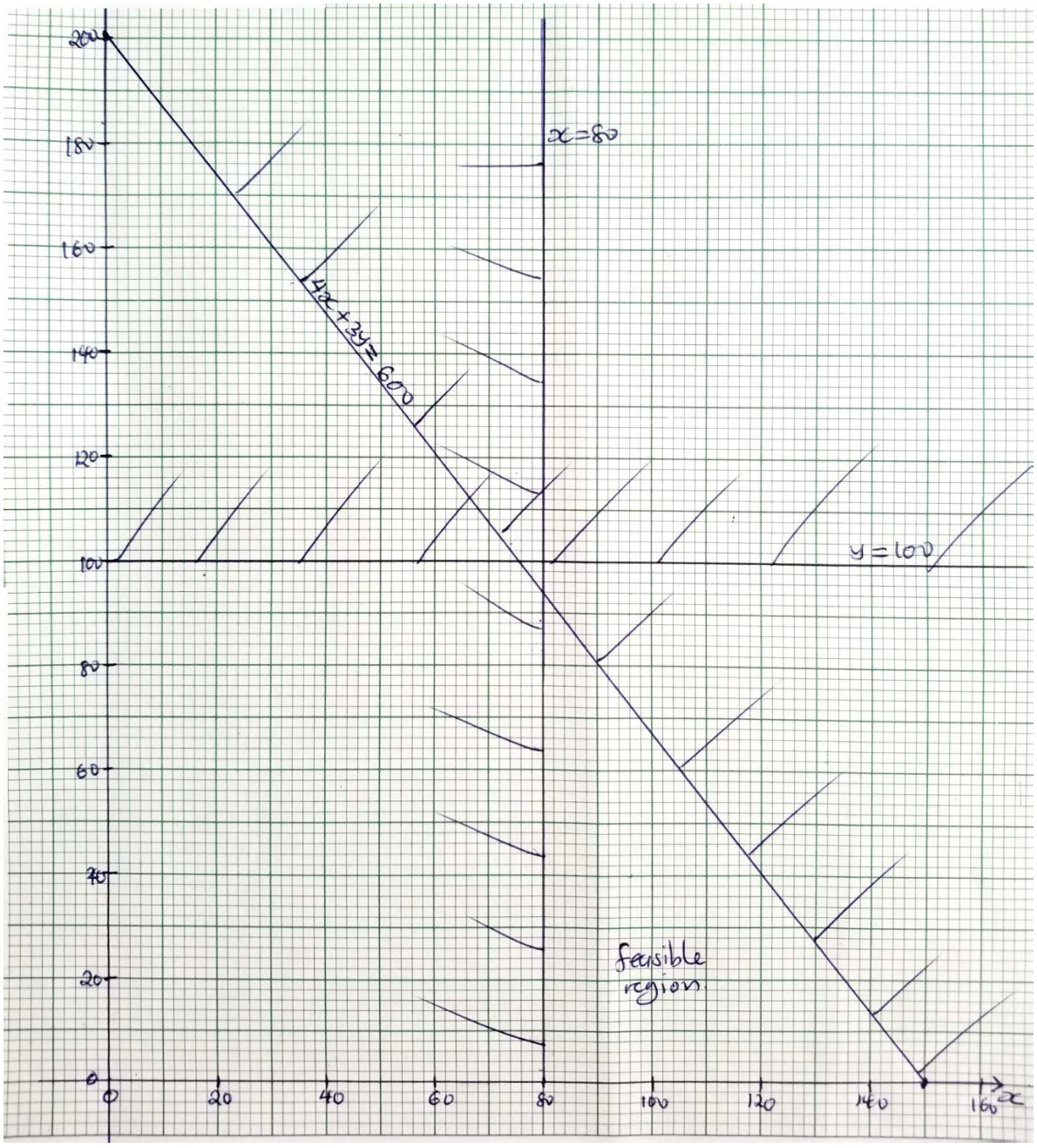
let x be number of uniforms for boys.
let y be number of uniforms for girls.

(a)

$inequalities.$	$equations(boundary\ lines).$
$x \geq 80.$	$x = 80$
$y \leq 100.$	$y = 100$
$4x + 3y \leq 600.$	$4x + 3y = 600$

(b)

x	0	150
y	200	0



(c) *the tailor should make* 120 *sets of boys and* 40 *sets of girls uniforms to maximise profits.*

$f(x, y) = 8{,}000x + 6000y.$

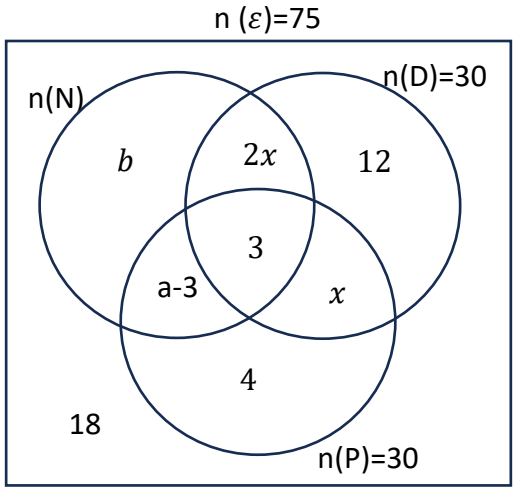
$f(120{,}40) = 8{,}000(120) + 6000(40) = 1{,}200{,}000shs.$

1,200,000shs is the maximum profit the tailor can make.

ITEM 3:

Let N, D and P represent National IDs, Driving permits and Passports.

(a)



$\boldsymbol{n(D) = 30.}$

$2x + 3 + x + 12 = 30.$

$3x = 15.$

$x = 5.$

$\boldsymbol{n(P) = 20.}$

$a - 3 + 3 + x + 4 = 20.$

$a - 3 + 3 + 5 + 4 = 20.$

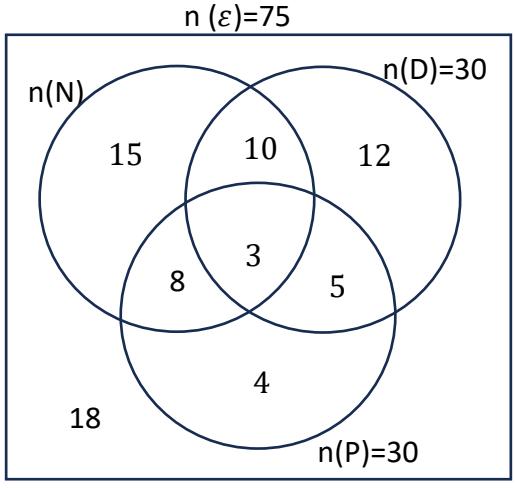
$a = 11.$

$\boldsymbol{n(\varepsilon) = 75.}$

$30 + b + a - 3 + 4 + 18 = 75.$

$30 + b + 11 - 3 + 4 + 18 = 75.$

$b = 15.$



$People\ with\ national\ IDs = 15 + 10 + 3 + 8.$

$= 36.$

36 *people had national IDs.*

(b) $No\ of\ people\ with\ one\ document = 15 + 12 + 4 = 31.$

$percentage = \frac{31}{75} \times 100 = 41.3.$

***there is a need for new office since the percentage of people with only one document is* 41.3% *less than* 50%.**

ITEM 4.

(a)

Maize bags	tally	frequency	cf	Class boundaries
$20-29$	////	4	4	$19.5-29.5$
$30-39$	~~////~~	5	9	$29.5-39.5$
$40-49$	~~////~~ ///	8	17	$39.5-49.5$
$50-59$	~~////~~ ~~////~~ //	12	29	$49.5-59.5$
$60-69$	~~////~~ ~~////~~	10	39	$59.5-69.5$
$70-79$	~~////~~ /	6	45	$69.5-79.5$
$80-89$	~~////~~	5	50	$79.5-89.5$
		$\sum f = 50$		

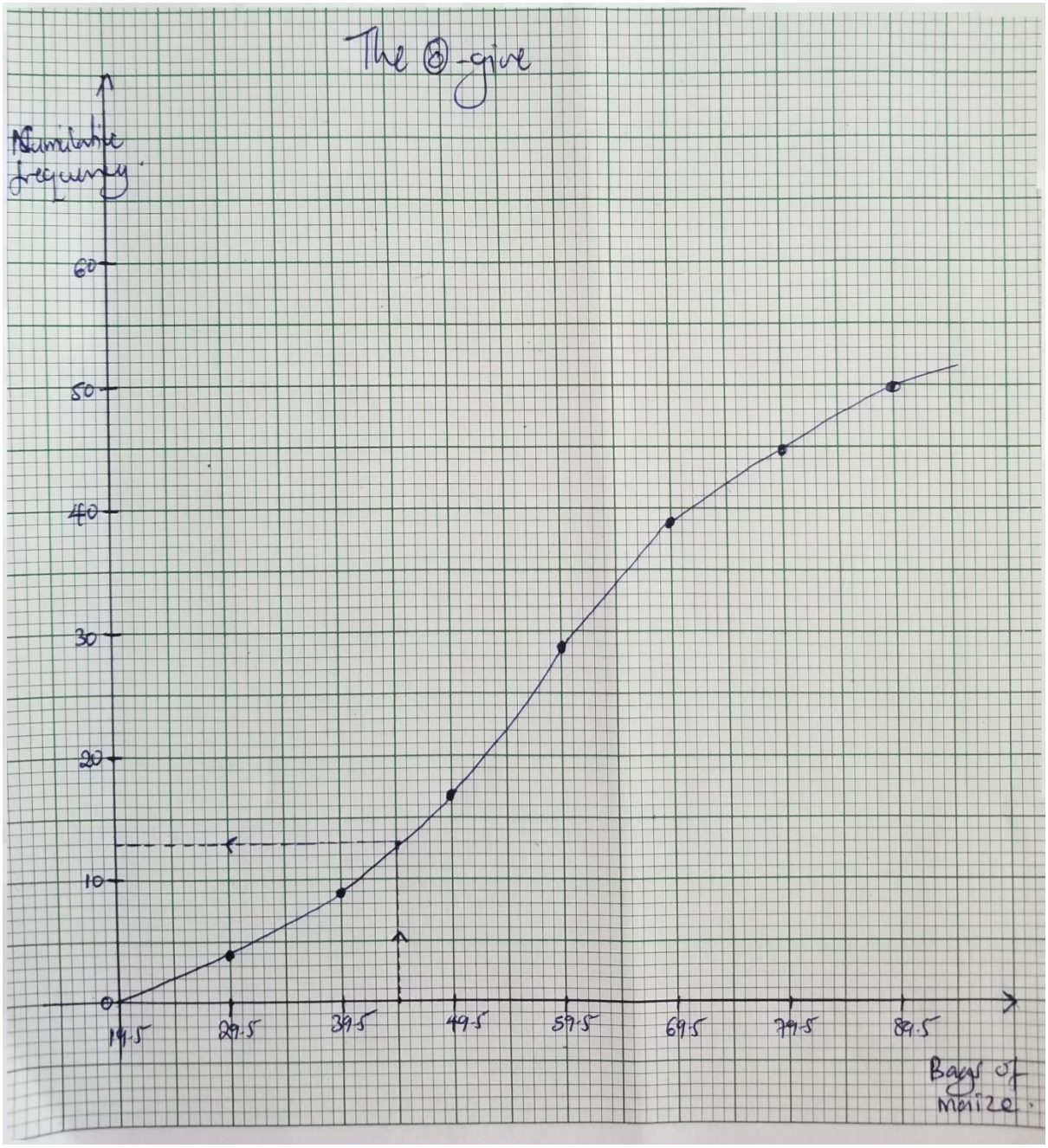
(b) $median = lcb + \left(\frac{\frac{N}{2} - cfb}{fw}\right) i.$

$median = 49.5 + \left(\frac{\frac{50}{2} - 17}{12}\right) \times 10.$

$median = 56.16667.$

$median \approx 57\ maize\ bags.$ (Note: a student can also use an O-give).

57 *bags of maize were harvested by half of the farmers.*



(c) *From the graph,*

13 $\boldsymbol{farmers\ will\ go\ for\ re-training.}$

ITEM 5.

(a) $cash = 400{,}000shs.$

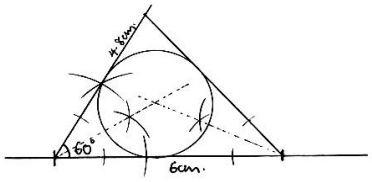
$hire\ purchase = 200{,}000 + (2 \times 110{,}000).$

$hire\ purchase = 420{,}000$shs.

he should pay cash because he will save $\mathbf{20{,}000.}$

(b)

Sketch.



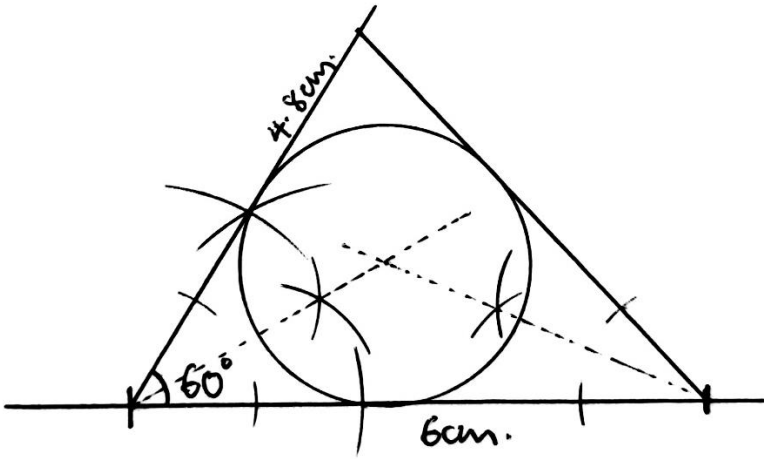
Scale:

$10cm = 1cm\ on\ paper$

$60cm = 6cm.$

$48cm = 4.8cm.$

Accurate diagram.



$radius = 1.5cm = 15cm.$

$Area\ of\ the\ circle = \pi r^2.\ (\ taking\ \pi = 3.14)$

$= 3.14 \times 15^2.$

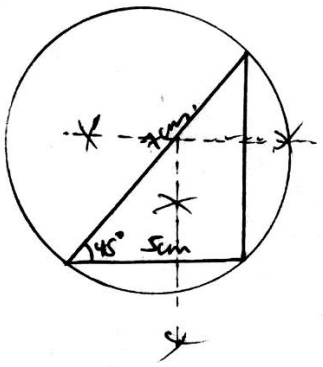
$= 706.5cm^2.$

The calculated area of $\mathbf{706.5cm^2}$ **for the inscribed circle meets and exceeds the minimum requirement of** $\mathbf{660.5cm^2}$**, ensuring a sufficient base area.**

ITEM 6.

(a)

Sketch.



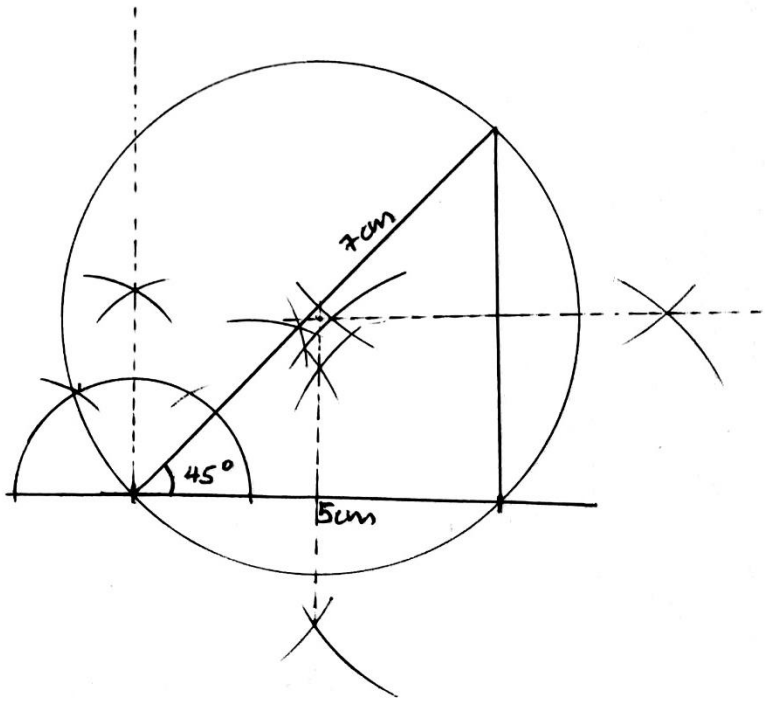
***Scale*:**

$10m = 1cm$

$50m = 5cm.$

$70m = 7cm.$

Accurate diagram.



(b) ***iscosceles triangle, it has two equal sides.***

(c) $radius = 3.5cm = 35m$

$Area\ of\ the\ circle = \pi r^2.$

$Area\ of\ the\ circle = 3.14 \times 35^2.$

$Area\ of\ the\ circle = 3846.5m^2.$

$$Area\ of\ the\ triangle = \frac{1}{2} \times 50 \times 70 \times sin45.$$

$$Area\ of\ the\ triangle = 1237.4m^2.$$

$$area\ to\ be\ paved = 3846.5 - 1237.4$$
$$= 2609.1m^2$$
$$Amount\ needed = 2609.1 \times 35000.$$
$$= 91{,}318{,}500\text{shs}$$

91,318,500shs *is needed to buy pavers*.

NOTE:

- Soon uploading Activities Of Integration (A.O.Is) for all class, UACE and UCE solution on Youtube.
- Some uploading videos about item assessment and how exactly we should score them.
- Check out on the website for recent papers, A.O.Is and MOCKS.

Channel name: **Tr. kabuzi maths.**