THE DREAM EDUCATION CONCERN

"Quest for excellence"

PRIMARY SIX MATHEMATICS END OF TERM 1

OFFICIAL MARKING GUIDE

TURN OVER

SECTION A (40 MARKS)

1 Work out:

$$\begin{array}{r} 30 \\ -\ 17 \\ \hline \\ \hline \end{array}$$

Solution process

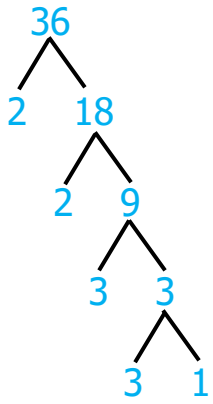
$$\begin{array}{r} {}^{2}\cancel{3}{}^{1}0 \\ -\ 17 \\ \hline 13 \\ \hline \end{array}$$

We cannot subtract 7 from 0, so we shall go to the neighboring digit and borrow

2 Simplify $\sqrt{36 + 15}$

Solution process

$\sqrt{36}$ = lets factorize



$\sqrt{36}$ = (2 x 2) x (3 x 3)

$\sqrt{36}$ = (2 x 3)

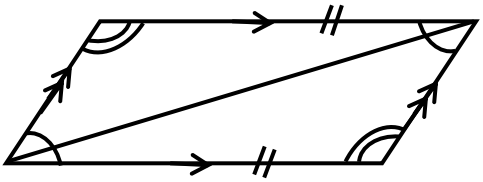
$\sqrt{36}$ = 6

$(\sqrt{36})$ + 15

= 6 + 15

= 21

3 Name the quadrilateral drawn below.



Parallelogram

A quadrilateral is any shape that has four sides

4 Given that set A={1, 2, 3,} and B={a, b, c}. describe the sets above.

Solution process

A = {1, 2, 3)

B = {a, b, c}

A $\longleftrightarrow$ B

The above are equivalent sets

Note: Equivalent sets are sets with the same number of elements which are not exactly the same

5 Write 49 in roman numerals.

Solution process

Roman Numerals	Hindu Arabic
XL	40
IX	9

49 = XLIX

Related content

Some of the hundi Arabic and their roman numerals

Hindu Arabic	Roman Numerals
100	C
200	CC
300	CCC

6 Babirye was taken to the hospital and her weight was 68.53kg. change her weight to grams.

Solution process

1kg = 1000g

But to change from a smaller unit t a bigger unit, we multiply

If 1kg = 1000g

68.53kg = ?

Let's cross multiply as below

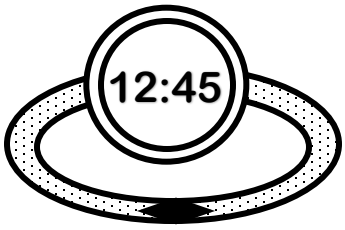
1kg = 1000g

68.53kg = X

(68.53 x 1000) g

68530g

	600 | DC 700 | DCC 50 | L 40 | XL 30 | XXX 20 | XX 10 | X 9 | IX 5 | V 4 | IV		Babirye weighed 68530g
7	Write 36,871 in words. Solution process Thousands | Units 36 | 871 Eight hundred seventy one Thirty six thousand Thirty six thousand eight hundred seventy one	8	Write the 9th triangular number. Solution process Use the formula below $= \frac{n(n+1)}{2}$ Where our number is 9 $= \frac{n(n+1)}{2}$ Let's substitute in as below $\frac{n(n+1)}{2}$ $= \frac{9(9+1)}{2}$ Let's first add the digits in brackets as below $= \frac{9(9+1)}{2}$ $\frac{9(10)}{2} = \frac{\cancel{90}^{45}}{\cancel{2}_{1}}$ $= 45$
9	Joan's farm had 250 goats in July, in August some goats were added she then got a total of 450. How many goats did she receive in August? Solution process Let the received goats be X X + 250 = 450 X + 250 – 250 = 450 Letc250cbecome negative by crossing the equal sign as below X + 250 – 250 = 450 – 250 X + ~~250~~ – ~~250~~ = 450 – 250	10	The perimeter of a square is 80dm. find the side of the square Solution process Perimeter means the total distance around the figure and its obtained by addition of all sides Sketch  But remember all sides of a square are equal and they are 4 in number

	X = 450 – 250 Arrange vertically as below for proper subtraction X = 4 5 0 - 2 5 0 2 0 0 Joan received 200goats in August Let's prove our answer X + 250 = 450 2 5 0 Since X = 200 + 2 0 0 200 + 250 = 4 5 0		Therefore, we shall divide 80 by 4 sides as below $\frac{80^{20}}{4_{1}}$ Each side = 20dm Method 2 Let the sides be W P = (W + W + W + W) dm We are adding four sides because a square has four sides P = W+ W + W + W 80dm = W + W + W + W $\frac{80^{20}}{4_{1}} = \frac{{}^{1}4W}{4_{1}}$ 20dm = W W = 20dm Each side = 20dm
11	Given that the LCM of 16 and T is 48 and the GCF is 4. Find the value of T. Solurion process Product of numbers =LCM x GCF 16 x T = 48 x 4 $\frac{{}^{1}16 \times T}{16^{1}} = \frac{{}^{3}12 \times 4}{16_{4_{1}}}$ (3 x 4) T = 12	12	Find the rate of progression in the serial below. 0, 6, 12, 18, 24, 30 Solution process 0 + 6 = 6 6 + 6 = 12 12 + 6 = 18 18 + 6 = 24 24 + 6 = 30 The rate of progression is 6
13	Simplify $8\frac{1}{2} - 3\frac{1}{4} + 2\frac{1}{12}$ Solution process Step 1 Let's change mixed to improper fraction using the formula below $\frac{D \times W + N}{D}$ Where D= Denominator W= Whole number N= Numerator Check below 8^{1}_{2} 1→Numerator, 2→Denominator ↓ Whole number Let's work it out	14	The time shown on a digital clock below was for a commercial break on Kyagulanyi Sentamu television. Use it and write the time in words.  It is a quarter to one Related content When teaching time, help learners to know the following

$8\frac{1}{2} - 3\frac{1}{4} + 2\frac{1}{12}$

Let's work out each fraction separately as below

a) $8\frac{1}{2} = (\frac{2 \times 8+1}{2}) = \frac{17}{2}$

b) $3\frac{1}{4} = (\frac{3 \times 4+1}{4}) = \frac{13}{4}$

c) $2\frac{1}{12} = (\frac{12 \times 2+1}{12}) = \frac{25}{12}$

following our question which is

$8\frac{1}{2}$ - $3\frac{1}{4}$ + $2\frac{1}{12}$

a) $\frac{17}{2}$ b) $\frac{13}{4}$ c) $\frac{25}{12}$

$\frac{17}{2} - \frac{13}{4} + \frac{25}{12}$

Collect positive terms as below

$\frac{17}{2} - \frac{13}{4} + \frac{25}{12}$

Check for the LCM of 12, 4 and 2which is 12

So our mathematical statement will be written as

$\frac{17}{2} - \frac{13}{4} + \frac{25}{12}$

So let's first deal with addition as below

$\frac{13}{4} + \frac{25}{12} = \frac{39+25}{12}$

(12 ÷4) = 2

(3 x 13) = 39

(12 ÷ 12) = 1

(1 x 25) = 25

$\frac{39 + 25}{12} = \frac{3\ 9 + 2\ 5}{6\ 4}$

So now let's subtract as below

$\frac{64}{12} - \frac{17}{2} = \frac{64-102}{12}$

12 ÷ 12 = 1

1 x 64 = 64

12 ÷ 2 = 6

6 x 17 = 102

$\frac{102 - 64}{12} = \frac{\cancel{38}^{19}}{\cancel{12}_{6}}$

$= \frac{19}{6}$

(i) When it is 1 – 29 minutes past time, we say the minutes that has passed on a given time ie

Current time	past	next hour
1	past	8: o'clock
2	past	any time up to 29min
3	past	
4	past	
5	past	

(ii) When 30 minutes past time, we say a half past the current time

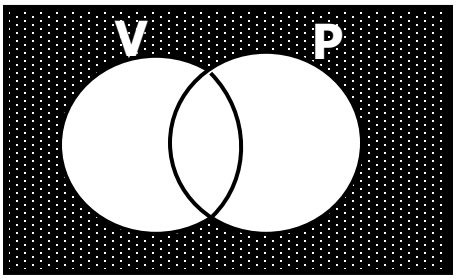
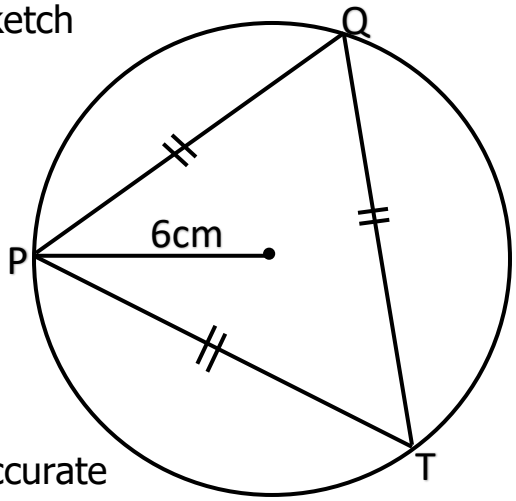
Ie a half past one

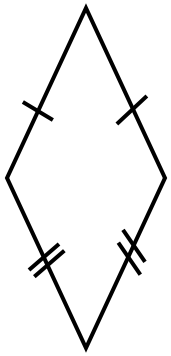
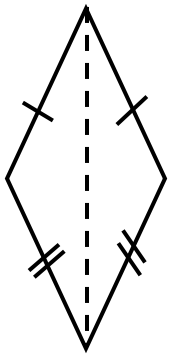
1:30

(iii) When 31 minutes up to 44minutes we say the remaining minutes to the next time ie 20 minutes to 8:00, this means that we shall write as 8:40 O'clock

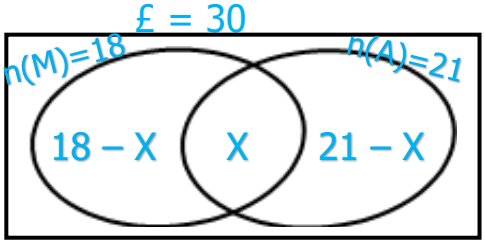
(iv) When 15 minutes past current time, we say a quarter past ie a quarter past 1:15 O'clock

(v) When 15 minutes to the remaining time, we say a quarter to the next hour ie 12:45 O'clock

	Change to improper fraction as mixed fracture as below $3\frac{1}{6}$		
15	Nalumaga sold her sheep at 35000/=. If she made a loss of sh. 6000. What was her buying price of the sheep? Solution process BPX = SPX + LOSS Where BPX = buying price SPX = selling price Let's work it out Note: When a loss is realized, we calculate buying price by adding loss to selling price as below Bpx = 35000 + 6000 Bpx = spx + loss Buying price = selling price + loss Bpx = 35000 + 6000 Arrange vertically Bpx = sh. 35000 Loss =sh. 6000 Sh. 41000 The buying price was sh.41,000 Let's prove The selling price was sh.35000 Where loss was sh. 6000 Sh.41,000	16	Describe the shaded region.  (V u P)^{1} In written it's V union P complement
17	A school van covered a distance of $\frac{2}{3}$ and still had 80km to cover to collect all school children. Solution process Let the covered journey be Y Covered: $\frac{2}{3}$; Un covered: $\frac{3}{3} - \frac{2}{3} = \frac{1}{3}$ Distance: Y ; 8okm $\frac{1}{3}$ of the journey = 80km $\frac{1}{3}$ of Y = 80km $\frac{1}{3}$ x Y = 80km Let's multiply 3 on both sides as below	18	Using a ruler, sharp pencil and a pair of compasses only, construct a triangle PQT whose radius is 6cm inside a circle. Sketch  Accurate

	$\cancel{3} \times \frac{1}{\cancel{3}} \times Y = 80km \times 3$ $Y = 240km$ The school van covered a journey of 240km		
19	Find the number of subsets in the expression below. P={0, 2, 4, 6,} Solution process No of subsets = 2^{n-1} $= 2^{4}-1$ $=(2 \times 2) \times (2 \times 2) - 1$ $= 4 \times 4 - 1$ $(4 \times 4) = 16$ $16 - 1 = 15$ Set P has 15 subsets	20	Show the line of folding symmetry in the figure below.  Solution process  Related content -A line of folding symmetry is a line through which a shape can be folded into two equal parts and the parts cover each other completely without over lapping -A shape is only symmetric only if it has at least one line of folding symmetry -A circle has infinite line of folding symmetry

SECTION B (60 MARKS)

21	In a class of 30 pupils, 18 like mathematics (M), 12like Art (A) and some like both. (a) Represent the above information on a Venn diagram. (1mk) 

(b) How many pupils like both subjects? (2mks)

Solution process

$18 - X + X + 21 - X = 30$

$18 + 21 - X = 30$

$39 - X = 30$

$39 - 39 - X = 30 - 39$

$-X = -9$

$-1 \quad -1$

$X = 9$

9 pupils like both subjects

(c) How many pupils like one subject? (1mk)

Solution process

$18 - X + 21 - X$

$18 - 9 + 21 - 9$

$9 + 12$

21pupils

(d) What is the probability of selecting a pupil who likes one subject? (1mk)

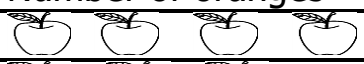
Solution process

Probability = n(E) = 21

SS = 30

Probability = $\frac{21}{30}$

22 The table below shows numbers of oranges which are sold from Monday to Friday. Study it carefully and answer questions that follows.

Days	Number of oranges
Mon	
Tue	
Wed	
Thur	
Frid	

Key  represents20 oranges

 represents ½ of 20 oranges

(a) How many oranges were sold on Wednesday?

Solution process

1  represents 20oranges

Wednesday = 2½

2  = 20 x 2

½  = 10 x 1

20 x 2 = 4 0

½ = 1 0

5 0

50 oranges were sold on Wednesday

(b) On which day was the highest number of oranges sold?

Thursday

(c) Find the number of oranges on the day which had the highest number of oranges.

Solution process

Note: The day which had the highest / biggest number of oranges was Thursday

But Thursday had 6  and each  represents 20 oranges but Thursday had 6

Work it out as below

1  = 20 oranges

6  = 6 x 20 oranges

Arrange vertically

$$\begin{array}{r} 20 \\ \times\ 6 \\ \hline 120 \end{array}$$

The day that had the highest number had 120 oranges

(d) How many more oranges were sold on Friday than Wednesday?

Solution process

We are to look for the total oranges sold on both days ie Friday and wednesday

But  = 20 oranges

Friday =  = 5 and each  = 5 x 20

$$\begin{array}{r} 20 \\ \times\ 5 \\ \hline 100 \end{array}$$

Friday had 100 oranges

Wednesday

Wednesday had 2½

But each  = 20 oranges

½ = 10

2½ x 20

Let's use the formula below

$$\frac{(D \times W + N) \times 20}{D}$$

Let's substitute in as below

Where D = Denominator

W = Whole number

N = Numerator

$$\frac{(2 \times 2 + 1) \times 20}{2}$$

$$\frac{(5)20}{2}$$

$$\frac{5 \times 20}{2}$$

5 x 10

Arrange vertically for proper and easy multiplication as below

	1 0 X 5 5 0 Wednesday had 50 oranges sold But the question required difference sales of between Friday and Wednesday Check below Sales on Friday more than Wednesday means that we shall subtract to the difference as below Friday = 100 oranges Wednesday = 50 oranges Arrange as below 1 0 0 - 5 0 5 0 oranges 5o more oranges were sold on Friday than Wednesday
23	Given that a = 6, b=$^{+}$2, c=5 (a) solve $\frac{2C + B}{a}$ Solution process $\frac{2C + B}{a}$ Where a = 6 B =$^{+}$2 C = 5 $\frac{2 \times 5 + +2}{6}$ (2 x 5) = $\frac{10 + {}^{+}2}{6}$ A positive plus a positive = a positive Check below ~~12~~ ~~6~~ = 2 (b) $a^2 + ab$ Solution process $a^2 + ab$ Where a = 6 b = 2 let's substitute as below $a^2 + ab$ $6^2 + 6 + 2$ any squared number means will be multiplied twice (6 x6) + 6 + 2

36 + 8
36 + 8
Arrange vertically

$$\begin{array}{r} 3\ 6 \\ +\ \ 8 \\ \hline 4\ 4 \end{array}$$

=44

24 (a) What number has been expanded to give (8x100) + (2x100) + (3x10) + (7x1)?

Solution process

To look for the expanded numbers, we should add / sum up the values as below

(8x100) + (2x100) + (3x10) + (7x1)

8 x 1000 = 8000

2 x 100 = 200

3 x 10 = 30

7 x 1 = 7

Arrange vertically and sum /add to get the total as below

$$\begin{array}{r} 8000 \\ 200 \\ 30 \\ +\ \ 7 \\ \hline 8237 \end{array}$$

(b)work out: $4\ 2\ 3_{five}$

$$\begin{array}{r} -\ 1\ 0\ 2_{five} \\ \hline \end{array}$$

Solution process

$$\begin{array}{r} 4\ 2\ 3_{five} \\ -\ 1\ 0\ 2_{five} \\ \hline 3\ 2\ 1_{five} \end{array}$$

25 Mathew went for shopping to Gulu main market with sh.35000 and bought the following items.

(a) By show of working, complete the table correctly. (5mks)

ITEM	QUANTITY	UNIT COST	AMOUNT
OMO	4packets	Sh.3000	Sh. 12000
BREAD	1	Sh. 3000	Sh. 3000
SUGAR	2kg	Sh. 4700	Sh. 9400
MAIZE FLOUR	8kg	Sh. 700	Sh. 5600
		TOTAL	SH. 30,000

Solution process

(i) Omo = 4packets

To get the total amount spent on Omo, we shall use the formula below

Changing from smaller unit to bigger unit, we multiply check below

	Unit cost = sh.3000 Quantity = 4kg Arrange vertically as below = sh. 3000 X 4 = sh. 12000 The cost of 4packets of Omo was sh.12000 (ii) Bread = ? total price sh. 3000 Unit cost sh.3000 To get the quantity of bread bought, we shall use the formula below Changing from a bigger unit to a smaller unit, we divide check below Sh.3000 ÷ 1 Sh.3000 ÷ 1 There was only one bread bought =1bread (iii) Sugar Quantity= 2kg Unit cost = 4700 Amount = ? We shall use the formula below Changing from a smaller unit to a bigger unit, we multiply Check below 4700 X 2 Sh. 9400 Sugar costed sh. 9400 (iv) Maize flour Maize = 8kg Total amount = 5600 We shall use the formula below Changing a bigger unit to a smaller unit, we divide (5600 ÷ 8)700 1 =700 (b) How much did he remain with after the shopping? Solution process The money he went with to the market was sh.35000 The remaining amount = will be obtained by subtracting the spent amount from the original amount before shopping Sh.35000 - Sh.30000 Sh.05000 The remaining amount was sh.5000/=
26	(a) Convert 5kilometers to meters (2mks)

Solution process

1km = 1000m

5km = 5m

Changing from small to bigger unit we need to multiply check below

5(1000)km

Arrange vertically

1000

X 5

5000

5km = 5000km

(b) What is $\mathbf{6\frac{1}{5}}$meters in centimeters? (3mks)

Solution process

1m = 100cm

$\mathbf{6\frac{1}{5}}$ m = (6 x 100)

$\mathbf{6\frac{1}{5}}$m = (6 x 100cm) + $\frac{1}{\cancel{5}_{1}}$ x $\cancel{100}^{20}$) cm

= 600cm + 20cm

Arrange vertically as below

6 0 0

+ 2 0

6 2 0cm

=620cm

27 (a) Arrange the fractions below in descending order. (5mks)

$\mathbf{\frac{1}{4}, \frac{1}{2}, \frac{3}{6}}$ and $\mathbf{\frac{2}{5}}$

Solution process

$\frac{1}{4}, \frac{1}{2}, \frac{3}{6}$ and $\frac{2}{5}$

Let's look for the LCM as below

$\frac{1}{\cancel{4}_{1}}$ x $\cancel{4}^{1}$ = 1 x 1 = 1

$\frac{1}{\cancel{2}_{1}}$ x $\cancel{4}^{1}$ = 2 x 1 = 2

$\frac{3}{\cancel{6}_{1}}$ x $\cancel{6}^{1}$ = 3 x 1 = 3

$\frac{2}{\cancel{5}_{1}}$ x $\cancel{5}^{1}$ = 2 x 1 = 2

$\frac{1}{4}$ = 1

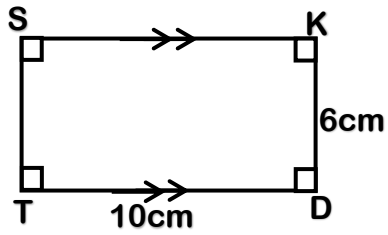
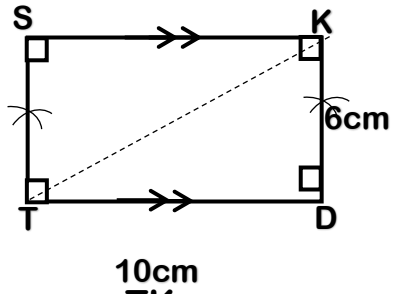
$\frac{1}{2}$ = 2

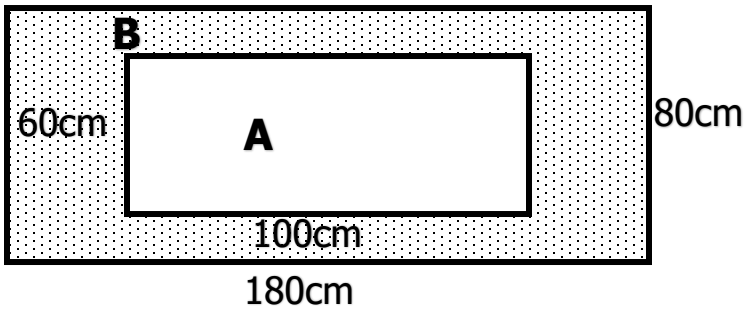
$\frac{3}{6}$ = 3

$\frac{2}{5}$ = 2

Descending order means that arrangement from the biggest going to the smallest as below

3, 2, 2, 1

	$\frac{3}{6}, \frac{1}{2}, \frac{2}{5}, \frac{1}{4}$
28	**Using a pair of compass, ruler and a sharp pencil only construct a rectangle TDKZ where TD=KZ=10cm and DK=6cm in the space provided.** **Solution process** **Step1 draw a line segment TD 10cm** **Step 2 construct a perpendicular line. At point T, construct a line perpendicular to TD using a compass and straight edge. At point D, construct another line perpendicular to TD** **Step 3 Mark off lengths. On the perpendicular line at , mark off length TK of 6cm. on perpendicular line D, mark off length DZ of 6cm** **Step 4 Connect the points. Connect points K and Z with line segment** **Check out below** **The resulting quadrilateral TDZK as a rectangle because all four angles are right angles (constructed using perpendicular lines and opposite sides are equal in length** **(TD=KZ=10cm and TK=DZ =6cm** **Sketch**  **Accurate**  **Measure TK.** **(1mk)** **11.1cm**
29	Elgon flyer bus takes 6hrs to cover a certain journey at 120km/hr but if takes only 4hours to return through a distance. Calculate the speed for the whole journey. (5mks) Solution process Distance = speed x time D = S x T Let's divide both sides by hours to eliminate it as below 120km /hr x 6hrs Hr Let's council the hours as below

	120km x 6~~hr~~ ~~Hrs~~ (120 x 6)km Total distance = 120 x 60 = 720km Hence distance = S x T =720 x 4 = 2880km Total time = 6 + 4 ↓Initial time ↓ closing time Arrange and add vertically as below for proper addition Initial time = 6 Closing time= 4 10 Average speed = 720 x 4 10 288 ~~2880~~ ~~10~~ Average speed was 288km/hour
30	A rectangular single room measures 180cm by 80cm a woolen carpet measures 100cm by 60cm. Calculate the room part which was un covered. (5mks) Solution process Let the rectangular room be shaded  Let the rectangular room be B and must be shaded as above Area of a rectangle is obtained by the formula below L x W Where L= Length W = Width Length = 180cm Width = 80cm 1 8 0 x 8 0 0 0 0 +1 4 4 0 1 4 4 0 0 Area of the room = 14400cm²

	Area of the woolen carpet will be obtained by the formula below A = Length x Width A = 100 x 60 = 1 0 0 X 6 0 0 0 0 6 0 0 6 0 0 0 = 6000cm² So to get the area of uncovered part of the room, we shall subtract the uncovered part from the covered as below A = B – A B = 14400CM² A = 6000CM² Let's arrange and subtract as below 1 4 4 0 0cm² - 6 0 0 0cm² 8 4 0 0cm²
	The area of the uncovered part of the room was 8400cm²
31	A picfare company of books, manufactures a certain number of books in a day, if each box 15 packs 421books. Find how many books are manufactured in a day. (2mks) Solution process Changing from a small unit to a big unit, we multiply (421 x 15) Arrange vertically 4 2 1 X 1 5 2105 +421 6315
	(b) Kato has 60 layer birds on his farm. Each lays 7eggs in a week. How many trays of eggs are collected in 3weeks? (3mks) Solution process 1hen = 7eggs 60 hens = 7(60) birds Arrange as below 6 0 X 7 4 2 0eggs
	In one week 420eggs are collected But 1tray = 30eggs To get the number of trays collected in one week, we shall multiply the eggs laid in one week by 3weeks

Check below
1 week = 420eggs
3 weeks = 420 x 3
Arrange vertically as below

$$\begin{array}{r} 4\ 2\ 0 \\ \times\ \ 3 \\ \hline 1\ 2\ 6\ 0 \end{array}$$

3weeks = 1260eggs
But 1 tray = 30eggs
To get the number of eggs we shall divide eggs laid in 3weeks by 30 as below

$$\begin{array}{r} 4\ 2 \\ 30\overline{)\ 1\ 2\ 6\ 0} \\ -\ 1\ 2\ 0 \\ \hline 0\ 0\ 6 \\ -\ \ 6\ 0 \\ \hline -\ \ - \end{array}$$

42trays are collected in 3weeks at Kato's farm

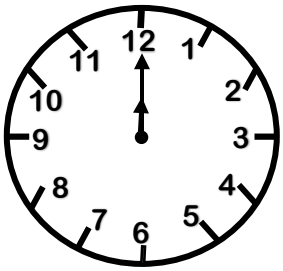
32 (a) It rained for $4\frac{1}{2}$minutes yesterday. Express how long it rained in minutes. (3mks)

Solution process
1hr = 60 minutes
$4\frac{1}{2}$hrs = (4 x 60m) + ½ x 60m
=240 min + 30 mins
Arrange vertically and add

$$\begin{array}{r} 2\ 4\ 0 \\ +\ \ 3\ 0 \\ \hline 2\ 7\ 0\text{minutes} \end{array}$$

It rained for 270minutes yesterday

(b) Tell the time on the clock face below. (2mks)



It is 12:00 O'clock

NOTE: We do workshop both internal and external for orienting teachers in:-

a) UNEB ACCEPTED Question approach
b) Modern teaching techniques
c) Lesson planning, scheming and proper lesson notes arrangements.
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e) We also train schools/company book keepers with skills in Excel, quick books and tally accounting.

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Note, we have acknowledged the challenge of our learners trying to cope up with new lower secondary curriculum and so we have shifted our setting to face the new challenge which calls for learners' personal reasoning and then teachers always to conduct learner's centered lessons. This paper constitutes 25% of the current class and 75% the previous classes to enable teachers and learners to preview the previous topics in order and limit knowledge gaps and hence produce fruitful results. Thanks for supporting Dream