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OFFICIAL MARKKING GUIDE MATHEMATICS

PRE- PRIMAMRY LEAVING EXAMINATION SET-III

MTC GUIDE FOR SET III-DONT MISS ANY OF OUR SETS FOR BETTER TESTIMONY IN 2025

COME JANUARY

WE HAVE B.O.T FROM BABY TO P.6

TRUST THE DREAM EDUCATION CONCERN. P7 MATHEMATICS PRE-PLE. SET 3. 2024 EXAMINATION
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SECTION A (40 MARKS)

1 Work out: $1\frac{3}{4} + 1\frac{5}{6}$

Solution process

Step 1. We need to change the mixed to proper fraction for simple solving using the formula below

$\frac{D \times W \times N}{D}$

Where D = Denominator
W = Whole number
N = Numerator

Part A $1\frac{3}{4}$ changed to proper as below

$\frac{(4 \times 1 + 3)}{4} = \frac{7}{4}$

Part B $1\frac{3}{4}$ changed to proper as below

$\frac{(6 \times 1 + 5)}{5} = \frac{11}{5}$

Therefor let sum up the two fractions

$= \frac{7}{4} + \frac{5}{6}$

Step 2 lets get the LCM of the denominators in both fractions as below

$\frac{7}{4} + \frac{5}{6}$

LCM of 4 and 6

2	4	6
2	2	3
	1	

2 x 2 x 1 x 3 = 12

Therefor the LCM of 4 and 6 is 12

$= \frac{7}{4} + \frac{5}{6}$

$\frac{21 + 22}{12} = \frac{43}{12}$

$= 3\frac{7}{12}$

2 Find the sum of the first 20 counting numbers

Solution process

n$(\frac{n+1}{2})$

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

20$(\frac{21}{2})$

20 x $\frac{21}{2}$

= 210

Point to remember; The sum of consecutive counting numbers is n$(\frac{n+1}{2})$

3 By what percentage will 100 be decreased to become 80?

Solution process

Percentage decrease = $\frac{\text{decrease}}{\text{Original no.}} \times 100$

Percentage decrease = $\frac{100 - 80}{100} \times 100$

$= \frac{20}{100} \times 100$

= 20%

4 Given that set A {a, b, c}. Find the number of subsets set A has

Solution process

Subset = 2n
n = 3
= 23
= (2 x 2) x 2
= 4 x 2
= 8 subsets.

5 Change 234_{six} to denary base

Solution process

2 3 4
4 → Ones (6^0)
3 → Six ones (6^1)
2 → Six sixes (6^2)

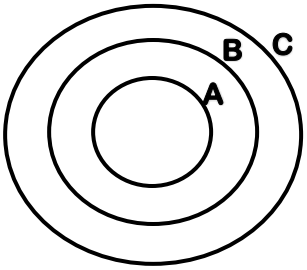
$(2 \times 6^2) + (3 \times 6^1) + (4 \times 6^0)$
$(12 \times 6) + 8 + 4$
$72 + 22$
94_{ten}

Point to remember;

6 Express 650000 in scientific rotation

Solution process

650,000 = 6.5 x 100,000
= 6.5 x 10 x 10 x 10 x 10 x 10
= 6.5×10^5

	Base — Name — Digit used Two — binary — 0, 1 Three — ternary — 0, 1, 2 Four — quaternary — 0, 1, 2, 3 Five — quinary — 0, 1, 2, 3, 4 Ten — denary/decimal — 0,1,2,3,4,5,6,7,8,9		
7	**Write MXLV in Hindu Arabic numeral** **Solution process** Sketch table Romans | Hindu M | 1000 XL | 40 V | 5 Add the Hindu numerals M = 1000 XL = 40 +V = 5 MXLV = 1045	8	**Workout 3816648 by 132 using long division** **Solution process** 28914 132√3816648 -264 1176 -1056 1206 -1188 184 -132 528 -528 000 3816648 ÷ 132 = 28914
9	**Write in figures: fifty-seven million four hundred twenty-one thousand nine hundred five.** **Solution process** Step 1 Arrange the figures according to the given quantity in ascending order as shown below. Words — figures Fifty-seven million — 57,000,000 Four hundred twenty-one thousand — 421,000 Nine hundred five — 905 Step 2 Add the given figures as below. 57,000,000 421,000 905 57,421,905 Ans	10	**Describe the set below**  **Solution process** A ⊂ B ⊂ C Note the symbol ⊂ means subset
11	**Find the next number in the sequence below. 2, 3, 5, 8, 12, 17, 23** +1 +2 +3 +4 +5 +6	12	**Nalubega sold her sheep at sh.34000 and made a loss of 15%. How much did the sheep cost?** **Solution process**

Solution process

2 + 1 =3

3+2=5

5+3=8

8+4=12

12=5=17

17+6=23

Points to remember;

(a)Only composite and prime numbers are the only numbers without patterns.

(b)Reducing sequences use subtraction patterns and division patterns.

(c)Increasing sequences use additional and multiplication patterns.

Loss=15%

C.P=100%

SP=100% - 15%

= 85% = 85% of cp = shs.34000

$\frac{85}{100}$ cp = shs.34000

$\frac{100}{100} \times \frac{85}{100}$ cp = shs.34000 x 100

85cp =shs.3,400,000

$\frac{85cp}{85} = \frac{shs.3,400,000}{85}$

CP = 40,000/=

The original cost of the sheep was shs.40,000

Note: In the above expression CP stands for cost price

Sp- stands for selling price

13 Namukose borrowed money from pride micro finance bank at a rate of 10% p.a (per annum) for 3 years. Calculate the amount she borrowed if she returned shs.26000 after 3 years

Solution process

P + SI – A mount

Where P= Principal amount (money borrowed)

SI = Simple Interest

R= Rate (percentage at which the loan was given)

Therefore

P + SI = Amount

P + PRT = Amount

$P + P \times \frac{10}{100} \times 3 = shs.26000$

$P + \frac{3p}{10} = shs.26000$

$10 \times P + \frac{3P}{10} \times 10 = shs.26000$

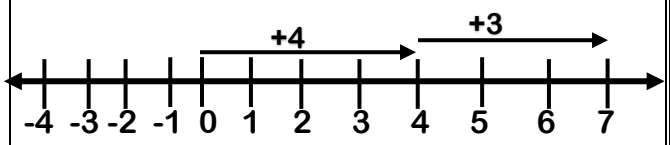
10P +3P = shs.26000

$\frac{13P}{13} = \frac{shs.26000}{13}$

P = 20,000

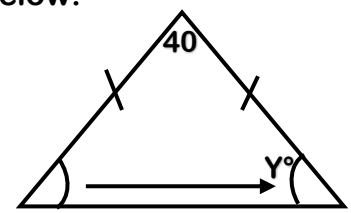
Namukose returned shs.20,000 to pride micro finance after 3years

14 Work out +4 + +3 using the number line.



$^{+}4 + {}^{+}3 = {}^{+}7$

15 Find the value of Y using the figure below.



Solution process

Y° + Y° 40° = 180°

2Y + 40° = 180°

2Y + 40 – 40 = 180° - 40°

$\frac{2Y}{2} = \frac{140°}{2}$

Y = 70°

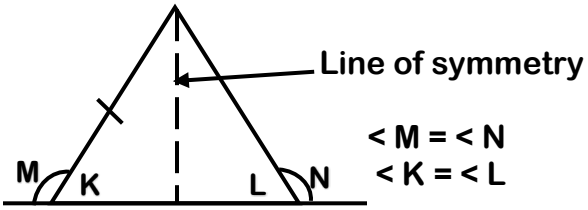
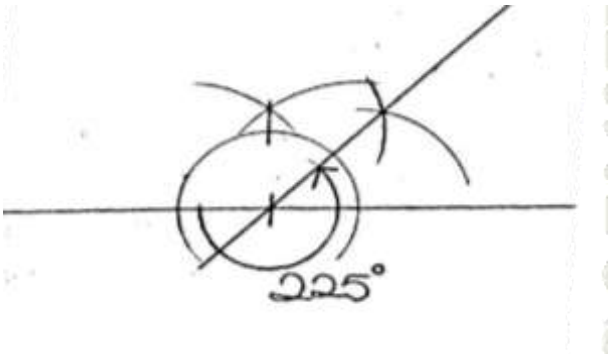
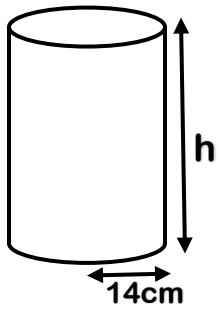
Point to remember; use the angle properties of a triangle to manage solving the above number as below

Two sides of a triangle are equal

It has one line of symmetry

Base angles are equal

Structural illustration

			
16	Using a pair of compasses, ruler and a pencil only construct angle 225° 	17	The distance between two markets is on a map is 6cm.Calculate the scale used on that map if the actual distance is 120km. **Solution process** Km to cm 1km = 100,000cm 12km = ? 12km =120 x 100,000cm = 12,000,000 =6cm = 12,000,000 6cm = 12,000,000 6 6 = 1,200,000
18	The bus left Karamoja at 13:15 hours and reached Kampala at 16:30hours, how long did the journey take? **Solution process** Duration = Ending time – starting time Arrange vertically as below Ending time was 16:30 Starting time was 13:15 Procedure = 16:30 13:15 3:15 The journey lasted for 2hours and 15 minutes OR	19	The volume of the cylinder below is 18480cm3. Find the height(h).  **Solution process** X^2 h = volume 22 x 14cm x 14cm x h = $18480cm^3$ 7

	It took 2¼hours for the journey to get done		$\frac{44cm \times 14cm \times h}{44cm \times 14cm} = \frac{18480}{44cm \times 14cm}$ Height (h) = 30CM
20	Factories 4xy – 12y completely **Solution process** 2 | 4xy | -12y 2 | 2x | -6y 2 | Xy | -y | X | -1 2 x 2 x Y (x -1) 4x (x-1)		

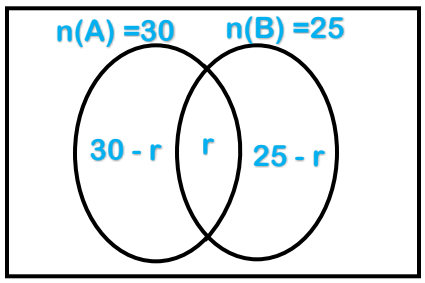
SECTION B

21 Given that n(A) = 30, n(B) = 25 and n(AuB) = 45.

(a) Draw a Venn diagram to show the above information

Solution process

n(AuB) = n(£ = 45)



(b) Find AnB

Solution process

Let the n(AnB) be r

30 – r + r + 25 – r = 45

30 + 25 + r – r – r =45

55 – r = 45

55 – 55 – r = 45

-r = -10

$\frac{-r}{-1} = \frac{-10}{-1}$

r = 10

(c) If a member is picked at random, find the probability of selecting a member in $(AnB)^1$

Solution process

$N(AnB)^1 = (30 - r) + (25 – r)$

$= (30 – 10) + (25 – 10)$

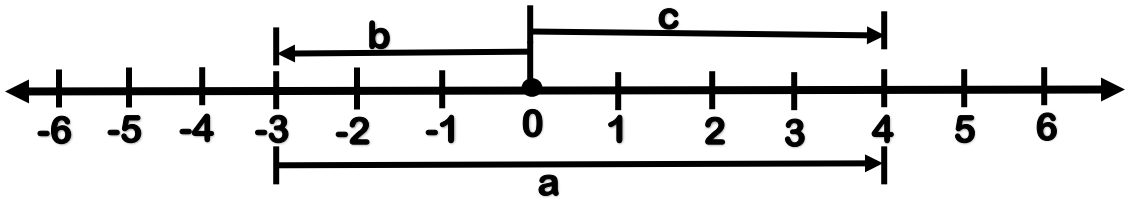
$= 20 + 15$

N(£) = 35

SS = 45

Probability = $\frac{35}{45}$

22 Use the number line to answer the questions that follow.



(a) Name the integers represented by the arrows.

A = $^{+}7$ b = $^{-}3$ c = $^{+}4$

(b) Work out the difference between b and a

Solution process

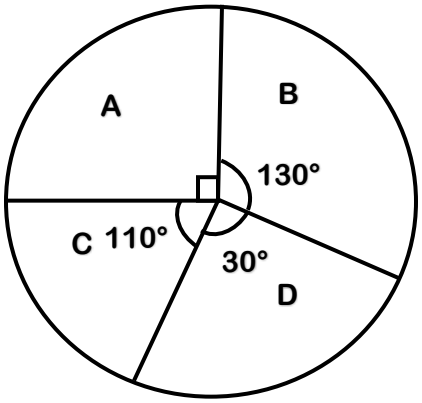
-3 - +7

-3 – (+7)

-3 – 7

-10

23 Study the pie chart below which shows the number of HIV testing kits which were given to different villages in 2016 and use it to answer the questions that follows.



(a) How many kits were distributed altogether if country D got 15millioom?

Solution process

Let the total number of kits be P

30° x P = 15,000,000

360°

36 x 3P =15,000,000 x 36

3 3 3

P = 15,000,000 x 12

P= 180,000,000kits

The kits which were distributed altogether were 180,000,000.

(b) How many kits were distributed to country B?

Solution process

130° x 18,000,000

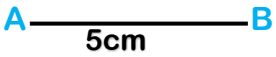
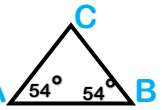
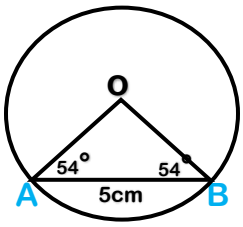
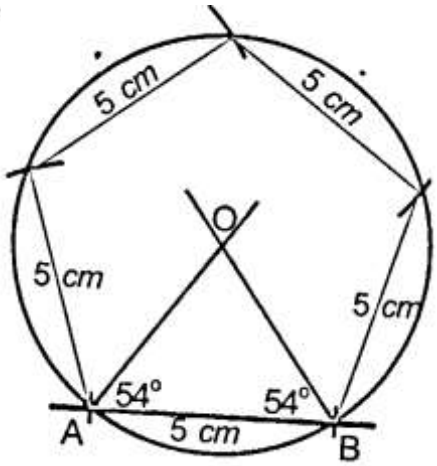
360°

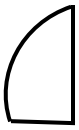
130 x 500,000

= 65,000,000kits

Country B had 65,000,000kits

(c) How many more kits were distributed to country C than country A?

	Solution process We shall subtract the kits of country A from those of country C 110° - 90° = 20° 20° x 18,000,000 360 20 x 500,000 =10,000,000 more kits Where; 18,000,000 is what was shared altogether 20° indicates the range between country A and C So, country C had 10,000,000 kits than country A
24	**Construct a regular pentagon of 5cm.** **Solution process** Note: Exterior angle = $\frac{360°}{5}$ = 72° Interior angles = 180° - 72° = 108° Half the interior angle = $\frac{108°}{2}$ = 54° Step 1. Draw a line AB = 5cm  Step 2. use a protractor to measure 54° at A and B to form <AOB.  Step 3. Construct a circle through point A and B using O as a center.  Step 4. use the length AB as a side mark of other equal arcs along the circumference Then join the arcs to form a pentagon as shown below. 

25	**Calculate the area of a quadrant of circle with radius 14cm. (use π r = $\frac{22}{7}$)** **Solution process** It is important to note that a quadrant has a center angle of 90° Total angle sum of a circle is 360° Area of a quadrant = $\frac{90°}{360°}\pi r^2$ $\frac{90°}{360}\pi r^2 = \frac{1}{4}\pi r^2$  Radius given 14cm Area = (¼ x 22 x 14 x 14)cm² =(¼ x 22 x 14 x 14)cm² A = 154cm2 Therefore, the area of a quadrant will be 154cm²
26	**Divine, Kato and Babirye shared a certain amount of money for their Christmas shopping in the ratio of 2 : 3 : 5 respectively. if Babirye got 1500 more than Divine,** **(a) How much did each get?** **Solution process** Hints: Respectively means that the ratio goes with the first person and the second ratio with the second person as well as the last ratio with the last personas illustrated below. Divine : Kato : Babirye 2 : 3 : 5 The share that equals to shs.1500 is 5 – 2 = 3parts 3parts make shs1500 1part makes shs. $\frac{1500}{3}$ = shs.500 Therefore, Divine got sh. (500 x 2) = shs.1000 Part of Share Ratio share Divine got shs.1000 Kato got shs. 500 x 3 = 1500 Part of share Ratio share Kato got 1500

Babirye got shs.(500 x 5) = shs 2500

Part of share Ratio share

Babirye got shs.2500

(b) How much money was shared by all the three children together?

Solution process

Since all the shares for the three children had been calculated above, here we shall just sum them up as below.

Children = Divine : Kato : Babirye
Ratio = 2 : 3 : 5
Amount = 1000 + 1500 + 2500

Arrange vertically

Divine = 1000
Kato = 1500
Babirye = 2500
Shs.5000

All the children shared shs.5000

27 **Use the shown currencies of different countries to answer the questions that follows.**

Exchange rates

1 US $ = Ug shs. 3700
1 Tz shs = Ug shs. 22
1 K shs. =Ug shs. 20

(a) How much in Uganda shillings is equivalent to $ 20 plus Tz shs. 3000?

Solution process

1 US $ = UG shs. 3700
Ug shs. 3700 x 20

Arrange vertically as below

Ug shs. = 3700
Us $ = x 20
Ug shs. = 74000

1 Tz shs. = Ug shs.2.2
Tz shs. = $\frac{2.2 \times 30,000}{10}$
Ug shs. 66,000

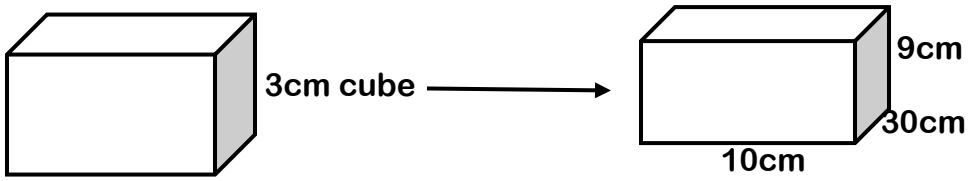
Total currency = Ug shs 74000
+ Ug shs 66000
14,0000

Total Ugandan shillings which is equivalent to US $ 20 and TZ shs. is Shs. 140,000

(a) Nalule works with the Tanzania Airways if her monthly salary is Ug shs.33000. What is her salary in Tanzanian currency

Solution process

Ug shs. 33,000 ÷ 2.2
= 33,000 ÷ $\frac{22}{10}$
= 33000 x $\frac{10}{22}$
= 3000 x 5
=TZ shs. 15000

28	**Kudosi packed 3cm cubes in a space of 30cm by 16cm by 9cm.Calculate the space left after packing.** **Solution process**  Number of cubes along "L" (length) $\frac{30}{3} = 10$ Number of cubes along "W" (width) $\frac{16}{3} = 5\text{cubes}$ Number of cubes along "H" (height) $\frac{9}{3} = 3\text{cubes}$ Total cubes = 10 x 5 x 3 = 150cubes The different volumes The box = 30 x 16 x 9 = 4320cm3 The cube = 3 x 3 x 3 = 27cm3 150cubes = 150 x 27 = 4050cm3 Space = 4320 – 4050cm Arrange vertically 4320cm - 4050cm 270cm3 The space left will be equivalent to 270cm3 after packing.
29	**A primary five class did a mathematics examination and the following marks were scored. 70, 65, 60, 50,60, 65, 55, 60,75 and 80** **(a) Find the mode. (1mark)** **Solution process** The word mode means the number or the figure which has appeared most and, in our arrangement, 60 has appeared most. Therefore, the modal mark is 60. **(b) Calculate the mean. (2marks)** **Solution process** Mean = $\frac{\text{total mark of score}}{\text{Number of pupils}}$ Note: To get number of pupils who sat the paper we shall count how many marks in form of items have been seen as below. 70, 65, 60, 50, 60, 65, 55, 60, 75, 80 1 2 3 4 5 6 7 8 9 10 So we have 10 pupils; Total mean= $\frac{70 + 65 + 60 + 50 + 60 + 65 + 55 + 60 + 75 + 80}{10} = 640$

Mean = total marks / No of pupils = 640/10 = 64

The mean was 64

(c) Find the median mark. (2marks)

Solution process

Step 1 Arrange in ascending order /descending order as below.

50, 55, 60, 60,60,65,65,70,75,80

Step 2 Begin counselling from both sides coming to the middle numbers as below.

~~50~~, ~~55~~, ~~60~~, ~~60~~, 60, 65, ~~65~~, ~~70~~, ~~75~~, ~~80~~

Step 3. In case one number remains in the middle it's our answer then but if two numbers remain in the middle, then add them and divide by two as below

(60 + 65)/2 = (125)/2

65.5 or 65½

Median mark will equal to 65.5

30 Omara went to the super market with sh. 100,000, if he bought the items as shown below is the table and remained with sh.16800 as change. Complete the table below with proper working shown.

ITEMS	QUANTINTY	COST PER UNIT	TOTAL COST
Sugar	5KG	4500	22,500
Smearing oil	2 tins	1600	32000
Shoe polish	3 TINS	2500	7500
Bread	4	53OO	21200
Total Expenses			sh.83200

Solution process

Changing from big to small quantity we divide

Changing from small to big quantity we multiply as below

Smearing oil = 32000/1600 = 2tins

Shoe polish = 7500/3 = sh.2500

Bread = (21200)/5300 = 4loafs

Sugar will equal to cost of all the items subtracted from the original amount as below

Smearing oil = 32000 cost of smearing oil

Bread = 21200 cost of bread

Shoe polish = 7500 cost of shoe polish

Change = 16800/77500 the change which remined

Step II

So, we shall subtract 77500 from the original amount which is 100,000

100,000

- 77500

22500sh.

So sugar's cost was 22500/=

Total expenses will equal to summation of all the four items as below

Sugar = sh. 22500
Smearing oil =sh.32000
Shoe polish = sh. 7500
Bread = sh.21200
Total expense= sh. 83,200
Prove yourself to see if after having spent sh.83,200 from 100,000/=, the change will be sh.16800as below.
Shs. 100,000 Original money before buying anything as in the table
-shs. 83,200 Total expenses after buying
Shs. 16800

31 Study the table below and answer questions below.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1	2	3	4	5	6	7	8	9	10	11	12

(a) It is July now, which month of the year will it be after 2 1 3 2 months.

Solution process

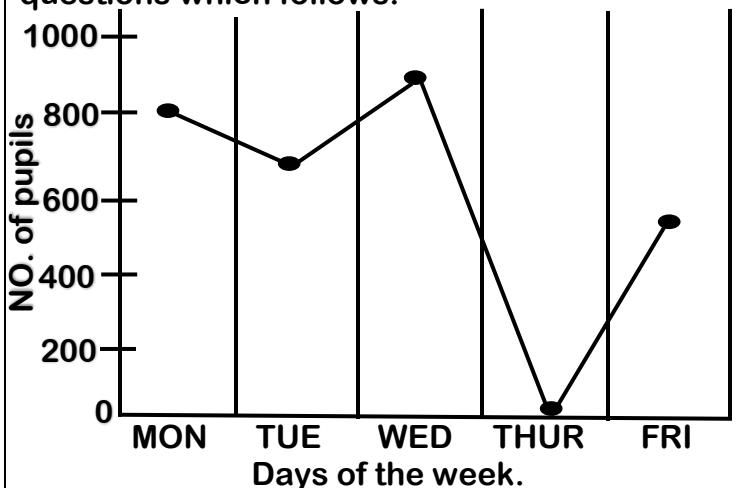
Seven represents the month of July
7represents July
7 + 2132 = _____(finite 2)
2139 = _____(finite 2)
2139 ÷ 12 = 178 rem 3 (finite 2)
2 stands for March
The month will be March.

(b) Simplify X – 4 = 3 (mod 7)

Solution process

X – 4 + 4 = 3 + 4 (mod 7)
X + 0 = 7 (mod 7)
X = 7 ÷ 7 (mod 7)
X = 1 rem 0 (mod 7)
X = 0 (mod 7)

32 Cabrine college's attendance was represented by the graph below. study the questions which follows.



(a) On which day of the week was the attendance high? (1mark)

The attendance was high on Wednesday

(b) How many pupils attended on Tuesday? **(1mark)**

They were 700 pupils

(c) What is the average attendance of the week?
(3marks)

Solution process

$$\text{Average} = \frac{\text{sum of items}}{\text{Number of items}}$$

$$\frac{800 + 700 + 900 + 0 + 600}{5}$$

$$\frac{(300)}{5}$$

Average = 600pupils