

MOTHERCARE PREPARATORY SCHOOLS
REVISION WORK TERM I - 2020
P.7 MATHEMATICS
Time Allowed: 2 Hours 30 Minutes

A = 40
 B = 60

 T = 100%

INDEX NO:

Random No.					Personal No.		

Candidate's Name: GUIDE SET FIVE

Candidate's Signature: _____ Stream: _____

School Random No: _____

District ID: _____

Read The Following Instructions Carefully.

1. The paper has **two** sections: **A** and **B**.
2. All the working for both sections **A** and **B** must be shown in the spaces provided.
3. All working must be done using a blue or black ball – point pen or fountain pen. Diagrams must be drawn in pencil.
4. Un necessary changes of work may lead to loss of marks.
5. Any handwriting that cannot easily be read may lead to loss of marks.
6. Do not fill anything in boxes indicated: **"For Examiners' Use only"** and those inside the question paper.

FOR EXAMINERS' USE ONLY			
SECTION	EXRS MARKS	T/L MARKS	OFFICE
A			
B			
TOTAL			

SECTION A: 40 MARKS

Answer all questions in this section.

Questions 1 to 20 carry two marks each.

1. Work out: $714 \div 7$

$$\begin{array}{r} 102 \\ 7 \overline{) 714} \\ \underline{7} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

OR

$$\begin{array}{r} 102 \\ 7 \overline{) 714} \\ \underline{7} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$714 \div 7 = 102$

$1 \times 7 = 7$

$0 \times 7 = 0$

$2 \times 7 = 14$

1	7
2	14
3	21
4	28
5	35
6	42

2. Write "One hundred thousand, one" in numerals.

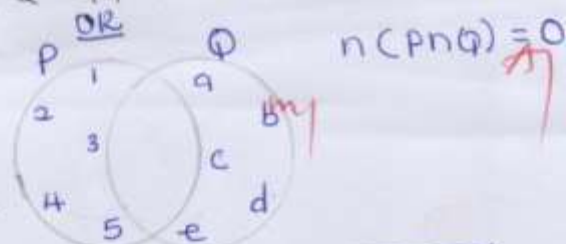
$$100,000 + 1$$

$$\begin{array}{r} 100,000 \\ + 1 \\ \hline 100,001 \end{array}$$

3. If $P = \{1, 2, 3, 4, 5\}$ and $Q = \{a, b, c, d, e\}$. Find $n(P \cap Q)$

$$P \cap Q = \{ \}$$

$$n(P \cap Q) = 0$$



4. Write XLIV in Hindu Arabic numerals.

$$\begin{array}{r} XLIV = XL = 40 \\ IV = + 4 \\ \hline XLIV = 44 \end{array}$$

5. A school bursar deposited a bundle of twenty thousand shilling notes to the bank numbered from AB855801 to AB855900. How much money did the bursar deposit:

Number of notes

$$\begin{array}{r} AB855900 \\ - AB855801 \\ \hline (99+1) \text{ notes} \\ 100 \text{ notes} \\ 100 \text{ notes} \end{array}$$

Money deposited
Sh: 20,000 x 100
Sh: 2,000,000

10

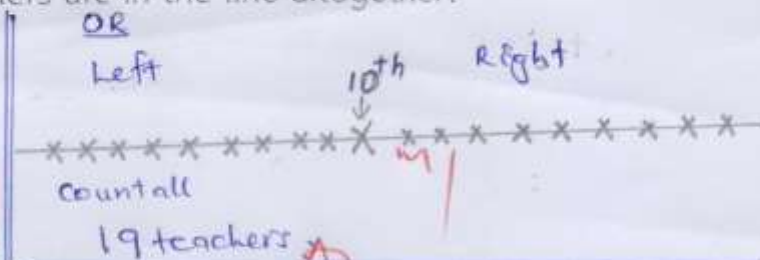
6. Find the next number in the sequence below.

$$\begin{array}{ccccccc}
 1 & 3 & 6 & 11 & 18 & & 29 \\
 \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & & \\
 +2 & +3 & +5 & +7 & +11 & & \\
 \hline
 & & & & & & 18 \\
 & & & & & & +11 \\
 & & & & & & \hline
 & & & & & & 29
 \end{array}$$

Addition of prime numbers

7. Okwaja is standing in the tenth position from the either sides of the line of teachers. How many teachers are in the line altogether?

$$\begin{array}{l}
 \text{(Position + position)} - 1 \\
 (P + P) - 1 \\
 (10 + 10) - 1 \\
 20 - 1 \\
 19 \text{ teachers}
 \end{array}$$



8. Express 10011_{two} as a decimal base.

1	0	0	1	1
2^4	2^3	2^2	2^1	2^0

$$\begin{array}{l}
 (1 \times 2^4) + (0 \times 2^3) + (0 \times 2^2) + 2(1 \times 2^1) + (1 \times 2^0) \\
 (1 \times 2 \times 2 \times 2 \times 2) + (0 \times 2 \times 2 \times 2) + (0 \times 2 \times 2) + (1 \times 2) + (1 \times 1) \\
 (4 \times 4) + 0 \times 4 \times 2 + 0 \times 4 + 1 \times 2 + 1 \\
 16 + 0 + 0 + 2 + 1 \\
 16 + 2 + 1 \\
 19_{\text{ten}}
 \end{array}$$

$$\begin{array}{r}
 16 \\
 + 3 \\
 \hline
 19
 \end{array}$$

9. Use distributive property only to work out $(25 \times 1.5) + (75 \times 1.5)$

$$\begin{array}{l}
 (25 \times 1.5) + (75 \times 1.5) \\
 1.5(75 + 25) \\
 \frac{15}{10} \times 100 \\
 15 \times 10 \\
 150
 \end{array}$$

$$\begin{array}{r}
 75 \\
 + 25 \\
 \hline
 100
 \end{array}$$

10. Write 0.000438 in standard form.

$$0.000438$$

10

$$0.000438 \times 10 = 0.00438$$

$$0.00438 \times 10 = 0.0438$$

$$0.0438 \times 10 = 0.438$$

$$0.438 \times 10 = 4.38$$

$$= 4.38 \times 10^{-4}$$

11. The ratio of boys to girls is 2:3. When increased by p, it becomes 14:15. Find the value of p.

the value of p

$$2:3$$

$$= \frac{2}{3}$$

$$14:15$$

$$\frac{14}{15}$$

$$\frac{2+p}{3+p} = \frac{14}{15}$$

$$15(2+p) = 14(3+p) \quad \checkmark$$

$$15 \times 2 + 15p = 14 \times 3 + 14p$$

$$30 + 15p = 42 + 14p$$

$$30 - 30 + 15p = 42 - 30 + 14p$$

$$15p = 12 + 14p$$

$$15p - 14p = 12 + 14p - 14p$$

$$p = 12 \quad \checkmark$$

12. Mr. Esau deposited sh. 240,000 in stanbic bank at the interest rate of 15% per year for 9 months. Find his simple interest.

$$SI = P \times R \times T$$

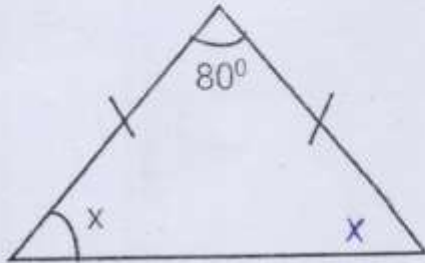
$$= \text{sh: } 240,000 \times \frac{15}{100} \times \frac{9}{12} \quad \checkmark$$

$$= \text{sh: } 200 \times 135$$

$$= \text{sh: } 27,000 \quad \checkmark$$

$$\begin{array}{r} \text{sh } 13500 \\ \times \quad 2 \\ \hline \text{sh } 27000 \end{array} \quad \checkmark$$

13. Find the value of x in the figure below.



$$x + x + 80^\circ = 180^\circ \quad (\text{int. } \angle \text{ sum of a triangle}) \quad \checkmark$$

$$2x + 80^\circ = 180^\circ$$

$$2x + 80^\circ - 80^\circ = 180^\circ - 80^\circ$$

$$2x = 100^\circ$$

$$\frac{2x}{2} = \frac{100^\circ}{2} \quad \checkmark$$

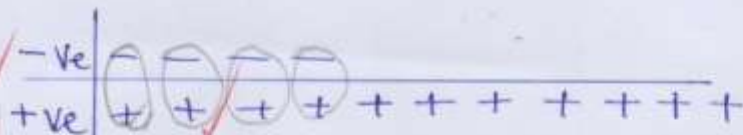
$$x = 50^\circ \quad \checkmark$$

14. Simplify: $-4 - (-11)$

$$-4 - (-11)$$

$$-4 + 11 \quad \checkmark$$

$$+7 \quad \checkmark$$



15. A man's stride is 30cm. How many strides does he have to make to cover a

distance of 150 metres?

Change 150m to cm

$$1\text{m} = 100\text{cm}$$

$$150\text{m} = (150 \times 100)\text{cm}$$

$$= 15000\text{cm} \quad \checkmark$$

Number of strides

$$\frac{15000\text{cm}}{30\text{cm}} \text{ strides}$$

$$= 500 \text{ strides} \quad \checkmark$$

10

16. Find the square root of $6\frac{1}{4}$

$$6\frac{1}{4} \rightarrow \frac{(6 \times 4) + 1}{4} = \frac{24+1}{4} = \frac{25}{4}$$

$$\sqrt{\frac{25}{4}} = \frac{\sqrt{25}}{\sqrt{4}} = \frac{5}{2} = 2\frac{1}{2} \text{ A}$$



17. Evaluate $a^2 - b$ if $a = -3$ and $b = 2$.

$$a^2 - b$$

$$a \times a - b$$

$$-3 \times -3 - 2 \text{ m}$$

$$+9 - 2$$

$$7 \text{ A}$$

18. In a class of 32 boys, the ratio of boys to girls is 2:3. Find the number of girls in the class. Method 1

Number of girls

$$\frac{\text{Girls' ratio}}{\text{Boys' ratio}} \times \text{Number of boys}$$

$$\frac{3}{2} \times 32 = 48 \text{ girls A}$$

OR Let the total number of pupils be y

Total ratio
 $2+3=5$

$$\frac{2}{5} \text{ of } y = 32$$

$$\frac{2}{5} \times y = 32$$

$$\frac{2y}{5} = 32 \times 5$$

$$\frac{2y}{5} = 160$$

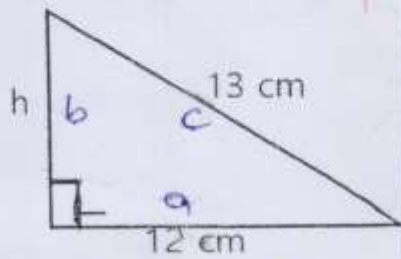
$$y = 160 \times \frac{5}{2}$$

$$y = 80 \text{ B}$$

No of girls

$$\begin{array}{r} 80 \\ - 32 \\ \hline 48 \end{array} \text{ B}$$

19. Find the area of the figure below.



$$a^2 + b^2 = c^2$$

$$a^2 + b^2 = c^2$$

$$(12\text{cm})^2 + b^2 = (13\text{cm})^2 \text{ m}$$

$$12\text{cm} \times 12\text{cm} + b^2 = 13\text{cm} \times 13\text{cm}$$

$$144\text{cm}^2 + b^2 = 169\text{cm}^2$$

$$144\text{cm}^2 - 144\text{cm}^2 + b^2 = 169\text{cm}^2 - 144\text{cm}^2$$

$$b^2 = 25\text{cm}^2$$

$$\sqrt{b^2} = \sqrt{25} \times \sqrt{1\text{cm}^2}$$

$$b = 5\text{cm} \text{ A}$$



20. Solve: $2^{2x} = 64$

$$2^{2x} = 64$$

$$2^{2x} = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$2^{2x} = 2^6 \text{ m}$$

$$2 \times 6$$

$$2x = 6$$

$$\frac{2x}{2} = \frac{6}{2}$$

$$x = 3 \text{ A}$$



$$64 = 2^6$$

10

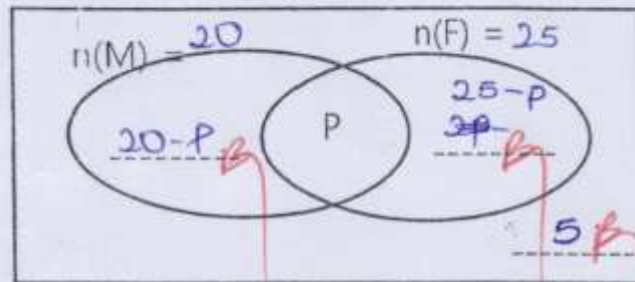
SECTIONS B: 60 MARKS

21. In a class of 40 candidates, all like chicken (C), 20 like meat (M) and chicken, 25 like fish (F) and chicken, p like all the three types of food while 5 candidates like chicken only.

a) Complete the Venn diagram below.

(3marks)

$n(\epsilon) = 40$



b) How many candidates like all the three types of food?

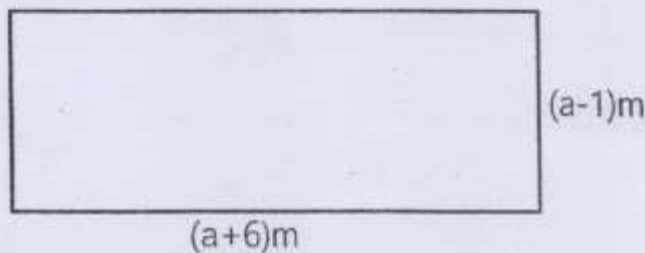
(2marks)

$$\begin{aligned} (20 + 25) - P + 5 &= 40 \\ (45 + 5) - P &= 40 \\ 50 - P &= 40 \\ 50 - 50 - P &= 40 - 50 \\ -P &= -10 \end{aligned}$$

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

$P = 10$

22. The figure below is a rectangle whose perimeter is 46 m. Use it to answer the questions that follow.



a) Find the value of a.

(3marks)

$$\begin{aligned} L + W + L + W &= P \\ (a+6)m + (a-1)m + (a+6)m + (a-1)m &= 46m \\ (a+a+6+6)m + (a+a-1-1)m &= 46m \\ 4a + 12 + 2a - 2 &= 46 \\ 6a + 10 &= 46 \end{aligned}$$

$$\begin{aligned} 4a + 10 &= 46 \\ 4a + 10 - 10 &= 46 - 10 \\ 4a &= 36 \\ \frac{4a}{4} &= \frac{36}{4} \end{aligned}$$

b) Work out the area of the figure above.

$a = 9$

Length	Width
$(a+6)m$	$(a-1)m$
$(9+6)m$	$(9-1)m$
15m	8m

$$\begin{aligned} \text{Area} &= L \times W \\ A &= 15m \times 8m \\ A &= 15m \times 8m \\ &= 120m^2 \end{aligned}$$

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23. Mary went to the market and bought the following items. Total expenditure

- 2 kg of meat at sh. 8,000 per kg
- $1\frac{1}{4}$ kg of sugar at sh. 6,000 each kg
- 500g of maize flour at sh. 3,000 per kg
- 12 tomatoes at sh. 1,000 for every 3 tomatoes

sh: 16,000
 sh: 7,500
 sh: 4,000
 + sh: 1,500
sh: 29,000

a) How much money did she spend altogether?

(5marks)

<p><u>Meat</u></p> <p>sh: 8000 $\times 2$ <u>sh: 16,000</u></p>	<p><u>sugar</u></p> <p>$1\frac{1}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ <u>sh: 7,500</u></p>	<p><u>Maize</u></p> <p>500g \times sh: 3000 $\frac{500}{1000} \times \text{sh: } 3000$ $500 \times \text{sh: } 3$ $\text{sh: } 500 \times 3$ <u>sh: 1500</u></p>	<p><u>Tomatoes</u></p> <p>$\frac{12}{3} \times \text{sh: } 1000$ $\frac{12}{3} \times \text{sh: } 1000$ $4 \times \text{sh: } 1000$ <u>sh: 4000</u></p>	<p><u>sugare</u></p> <p>$1\frac{1}{4} \times \text{sh: } 6000$ 1500 $\frac{5}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ $\frac{5}{4} \times \text{sh: } 6000$ <u>sh: 7,500</u></p>
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b) If she was given a change of sh. 21,000, how much money did she have at first?

(1mark)

sh: 29,000
 + sh: 21,000
sh: 50,000

24. The sum of three consecutive even numbers is 66. If the last number is r ,

a) Find the numbers.

(3marks)

First number	Second number	Third number	Sum
$r-4$	$r-2$	r	66

$\frac{1}{2}r = \frac{24}{3}$
 $r = 24$

$r + r - 2 + r - 4 = 66$

$r + r + r - 2 - 4 = 66$

$3r - 6 = 66$

$3r - 6 + 6 = 66 + 6$

$3r = 72$

1 st number	2 nd number	3 rd number
$r-4$	$r-2$	24
24-4	24-2	24
20	22	24

b) Work out the range of the numbers

(1mark)

Range = $H - L$

$24 - 20$

4

10

25. The table below shows marks scored by some pupils.

Marks	80	k	70	90
No. of pupils	2	4	3	1

a) How many pupils did the test? (2marks)

$(2+4+3+1)$ pupils
 $(6+4)$ pupils
 10 pupils

b) Find the value of k if the mean mark is 66. (3marks)

$$\begin{array}{r} 160 \\ 210 \\ + 90 \\ \hline 460 \\ \\ 660 \\ - 460 \\ \hline 200 \end{array}$$

$\frac{\text{Sum of items}}{\text{Number of items}} = \text{Mean}$

$$\frac{(80 \times 2) + (k \times 4) + (70 \times 3) + (90 \times 1)}{10} = 66$$

$$\frac{160 + 4k + 210 + 90}{10} = 66$$

$$\frac{(4k + 460) \times 10}{10} = 66 \times 10$$

$$4k + 460 = 660$$

$$4k + 460 - 460 = 660 - 460$$

$$4k = 200$$

$$\frac{4k}{4} = \frac{200}{4}$$

$$k = 50$$

26. The table below shows the arrival and the departure time of the bus from Kampala to Tororo. Use it to answer the questions that follow.

Town	Arrival	Departure
Kampala		7:00 am
Jinja	8:45 am	9:00 am
Iganga	10:00 am	10:20 am
Bugiri	11:00 am	11:15 am
Tororo	12:00 noon	

a) How long did the bus take to travel from Iganga to Tororo? (2marks)

$$\begin{array}{r} 12:00 \text{ noon} \\ - 10:20 \text{ am} \\ \hline 1 \text{ hr } 40 \text{ minutes} \end{array}$$
 It took 1hr and 40minutes

b) For how long did the bus stay in Jinja? (2marks)

$$\begin{array}{r} 9:00 \text{ am} \\ - 8:45 \text{ am} \\ \hline 15 \text{ minutes} \end{array}$$

The bus stayed in Jinja for 15minutes

10

27. When marking a test of 20 questions, a teacher awards 5 marks for every correct answer but deducts 2 marks for every wrong answer. If a candidate got 72 marks, how many questions did he fail? (4mks)

Let the correct the questions be C

Correct	Wrong	Total
C	$20 - C$	
$5 \times C$	$2 \times (20 - C)$	72

Correct - Wrong = Total marks

$$5C - 2(20 - C) = 72 \quad \checkmark$$

$$5C - 2 \times 20 + 2C = 72$$

$$5C - 40 + 2C = 72$$

$$5C + 2C - 40 = 72$$

$$5C + 2C - 40$$

$$7C - 40 + 40 = 72 + 40$$

$$7C = 112$$

$$\frac{7C}{7} = \frac{112}{7} \quad \checkmark$$

$$C = 16 \text{ questions} \quad \checkmark$$

Wrong questions

$$20 - C$$

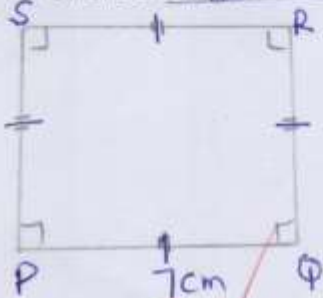
$$20 - 16$$

$$4 \text{ questions} \quad \checkmark$$

A candidate failed 4 questions.

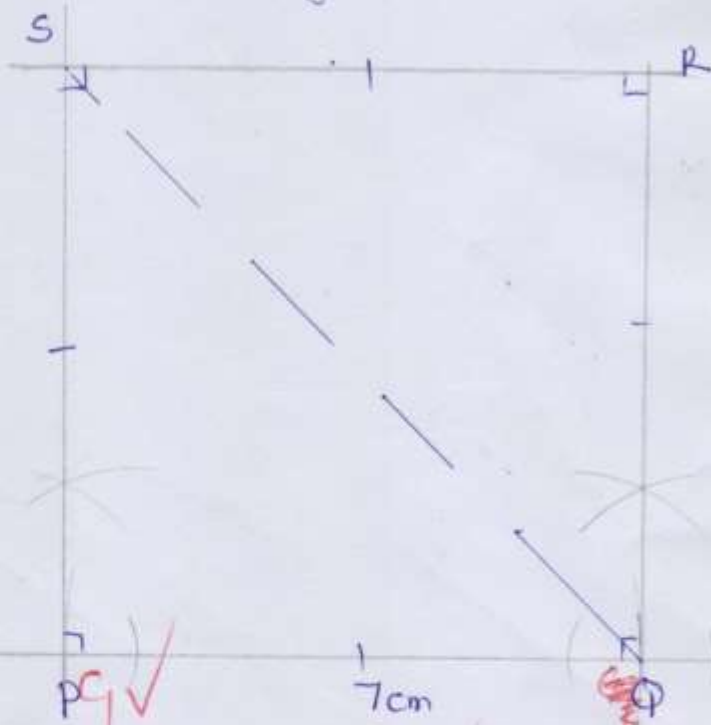
28. (a) Using a ruler, a pencil and a pair of compasses construct a square PQRS

Sketch of side length 7cm.



Accurate diagram

(3mks)



- b. Measure angle PQS

$$45^\circ \quad \checkmark$$

- 29 (a) Katongole is four times as old as his son. After six years, the difference in their ages will be 30 years. How old is Katongole now? (4mks)

Let the son's age be y

	Katongole	Son	difference
now	$4x$	y	
in 6 years	$4y + 6$	$y + 6$	30

$$(4y + 6) - (y + 6) = 30$$

$$4y + 6 - y - 6 = 30$$

$$4y - y + 6 - 6 = 30$$

$$3y = 30$$

$$\frac{3y}{3} = \frac{30}{3}$$

$$y = 10$$

Katongole's age now

$$4y$$

$$(4 \times 10) \text{ years}$$

$$40 \text{ years}$$

- b. Solve: $4n - 3 = n$

$$4n - 3 = n$$

$$4n - 3 + 3 = n + 3$$

$$4n = n + 3$$

$$4n - n = n - n + 3$$

$$3n = 3$$

$$\frac{3n}{3} = \frac{3}{3}$$

$$n = 1$$

30. At Mapengo's poultry farm, layers lay $(8 \times 10^2) + (7 \times 10^1) + (0 \times 10^0)$ eggs per day.

- (a). If Mapengo collects eggs in 3 days, how many eggs did he collect? (3mks)

Number of eggs laid in a day

$$(8 \times 10^2) + (7 \times 10^1) + (0 \times 10^0)$$

$$(8 \times 10 \times 10) + (7 \times 10) + (0 \times 1)$$

$$(8 \times 100 + 70 + 0) \text{ eggs}$$

$$(800 + 70) \text{ eggs}$$

$$870 \text{ eggs}$$

Eggs collected in 3 days

$$\begin{array}{r} 870 \text{ eggs} \\ \times 3 \\ \hline 2610 \text{ eggs} \end{array}$$

$$\times 3$$

$$2610 \text{ eggs}$$

- (b). If he packs the eggs in trays and each tray cost sh. 10,000, how much money did he get from the eggs collected in 3 days? (3mks)

Number of trays

$$2610 \text{ eggs}$$

$$30 \text{ eggs} = 1 \text{ tray}$$

$$2610 \text{ eggs} = \left(\frac{2610}{30} \right) \text{ trays}$$

$$87 \text{ trays}$$

Amount of money.

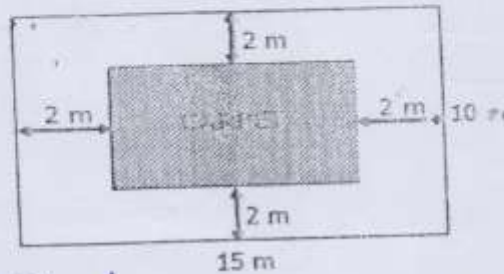
$$87$$

$$87 \times \text{sh. } 10,000$$

$$\text{sh. } 870,000$$

12

31. The figure below represents the sitting room of 15 m by 10 m with a carpet placed in the middle. Use it to find the area of the space that is not covered by the carpet. (5marks)



Length of a Carpet

$$(15 - 2 - 2) \text{ m}$$

$$(15 - 4) \text{ m}$$

$$\underline{11 \text{ m}} \quad B_1 \checkmark$$

Width of the carpet

$$(10 - 2 - 2) \text{ m}$$

$$(10 - 4) \text{ m}$$

$$\underline{6 \text{ m}} \quad B_1 \checkmark$$

Area of the carpet

$$A = L \times W$$

$$A = 11 \text{ m} \times 6 \text{ m}$$

$$\underline{A = 66 \text{ m}^2} \quad B_1 \checkmark$$

Area of the un covered space by the carpet.

$$150 \text{ m}^2$$

$$- 66 \text{ m}^2$$

$$\underline{84 \text{ m}^2} \quad B_1$$

Area of the sitting room

$$A = L \times W$$

$$A = 15 \text{ m} \times 10 \text{ m}$$

$$\underline{A = 150 \text{ m}^2} \quad B_1 \checkmark$$

32. Given that $y = x - 2$. Complete the table below. (5marks)

x	-2	-1 $B_1 \checkmark$	0	1 $B_1 \checkmark$	2
y	-4 $B_1 \checkmark$	-3	-2 $B_1 \checkmark$	-1	0 $B_1 \checkmark$

If $x = -2$

$$y = x - 2$$

$$y = -2 - 2$$

$$y = -4 \quad \checkmark$$

$$\begin{array}{r} -x \\ +x \end{array} \begin{array}{r} - \\ - \\ - \\ - \end{array}$$

If $y = -3$

$$x - 2 = y$$

$$x - 2 = -3$$

$$x - 2 + 2 = -3 + 2$$

$$x = -1 \quad \checkmark$$

$$\begin{array}{r} -x \\ +x \end{array} \begin{array}{r} - \\ - \\ + \\ + \end{array}$$

If $x = 0$

$$y = x - 2$$

$$y = 0 - 2$$

$$y = -2 \quad \checkmark$$

If $y = -1$

$$x - 2 = y$$

$$x - 2 = -1$$

$$x - 2 + 2 = -1 + 2$$

$$x = 1 \quad \checkmark$$

$$\begin{array}{r} -x \\ +x \end{array} \begin{array}{r} - \\ + \\ + \\ + \end{array}$$

If $x = 2$

$$y = x - 2$$

$$y = 2 - 2$$

$$y = 0 \quad \checkmark$$

10