

# 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 THREE

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)

1. Work out:  $87$

$$\begin{array}{r} -35 \\ 87 \\ \hline 52 \end{array}$$

B<sub>2</sub> ✓

2. Given that set A = {a, e, i, o, u} and set B = {a, b, c, d, e}. Find n(B - A)

$$B - A = \{b, c, d\} \quad M_1 \quad \checkmark$$

$$n(B - A) = 3 \quad A_1 \quad \checkmark$$

OR



$$n(B - A) = 3 \quad A_1 \quad \checkmark$$

3. Find the sum of the next two numbers in the sequence.

$$2, 3, 5, 7, \underline{11}, \underline{13}$$

(Prime numbers)

Sum
13
+ 11
-----
24

B<sub>1</sub> ✓

4. Write the single number from  $(9 \times 10^1) + (4 \times 10^3) + (7 \times 10^{-1})$

$$(9 \times 10^1) + (4 \times 10^3) + (7 \times 10^{-1})$$

$$(9 \times 10) + (4 \times 10 \times 10 \times 10) + \frac{7 \times 1}{10}$$

$$90 + 4 \times 1000 + \frac{7}{10}$$

$$90 + 4000 + 0.7$$

4000.0
90.0
+   0.7
-----
4090.7

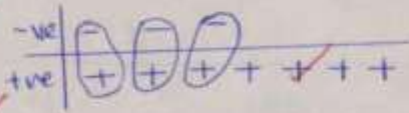
A<sub>1</sub> ✓

5. Simplify:  $-3 - -7$

$$-3 - (-7)$$

$$-3 + 7 \quad M_1 \quad \checkmark$$

$$+ 4 \quad A_1 \quad \checkmark$$



10

6. Work out:  $\frac{1}{2} + \frac{1}{5}$   
 LCM = 10

$$\frac{\left(\frac{1}{2} \times \frac{5}{5}\right) + \left(\frac{1}{5} \times \frac{2}{2}\right)}{10} = \frac{5+2}{10} = \frac{7}{10}$$

$\frac{1}{2} + \frac{1}{5} = \frac{7}{10}$

OR

$$\left(\frac{1}{2} \times \frac{5}{5}\right) + \left(\frac{1}{5} \times \frac{2}{2}\right) = \frac{5}{10} + \frac{2}{10} = \frac{5+2}{10} = \frac{7}{10}$$

7. Set P has 32 subsets. Find n(P)

No of subsets = ~~2~~  $2^n$

$2^n = 32$

$2^n = 2 \times 2 \times 2 \times 2 \times 2$

$2^n = 2^5$

$n = 5$

2	32
2	16
2	8
2	4
2	2
	1

Therefore  $n(P) = 5$

8. The mean of 13, 8, 7 and Y is 10. Find the value of Y.

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

$\frac{(13+8)+7+y}{4} = 10$

$\frac{y+21+7}{4} = 10$

$\frac{y+28}{4} = 10$

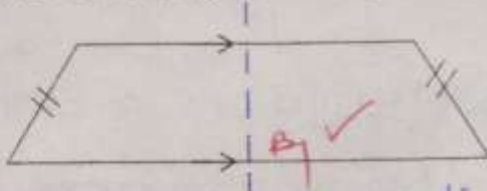
$\frac{1}{4} \times (y+28) = 10 \times 4$

$y+28 = 40$

$y+28-28 = 40-28$

$y = 12$

9. How many lines of folding symmetry are on the shape below.



The above shape has only one line of folding symmetry.

10. A morning lesson that started at 10:45 am took  $1\frac{1}{2}$  hours. At what time did the lesson end?

1hr and  $\left(\frac{1}{2} \times 60 \text{ minutes}\right)$

1hr and 30 minutes.

Ending time = Starting time + Duration

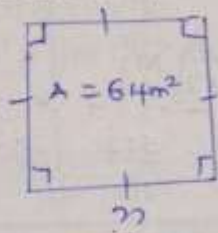
$75 \div 60 = 1 \text{ hr } 15 \text{ min}$

$10:45 \text{ am}$   
 $+ 1 \text{ hr } 30 \text{ min}$   
 $\hline 12:15 \text{ pm}$

10

The lesson ended at 12:15 pm

11. The area of a square is  $64\text{m}^2$ . Find the length of each side of the square.



$$A = s \times s$$

$$A = s^2$$

$$s^2 = A$$

$$s^2 = 64\text{m}^2$$

$$\sqrt{s^2} = \sqrt{64 \times 1\text{m}^2}$$

$$s = 2 \times 2 \times 2 \times 2 \times 1\text{m}$$

$$s = 4 \times 2\text{m}$$

$$s = 8\text{m}$$

Each side is  $8\text{m}$

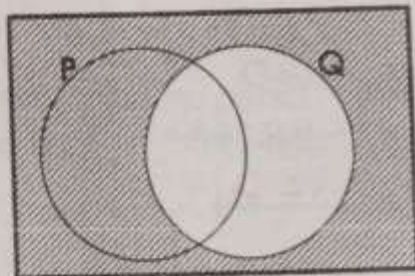
2	64
2	32
2	16
2	8
2	4
2	2
	1

12. Martin was born in the year MCMLXXIX. Express his year of birth as a Hindu Arabic numeral.

$$\begin{array}{r} M = 1000 \\ CM = 900 \\ LXX = 70 \\ IX = 9 \\ \hline MCMLXXIX = 1979 \end{array}$$

Martin was born in 1979.

13. Describe the shaded region.



Set Q Complement or set  $Q'$

14. Multiply:  $101_{\text{two}} \times 11_{\text{two}}$

$$\begin{array}{r} 101_{\text{two}} \\ \times 11_{\text{two}} \\ \hline 101 \\ + 101 \\ \hline 1101 \end{array}$$

$101_{\text{two}} \times 11_{\text{two}} = 1101_{\text{two}}$

10

15. Find the square of  $1\frac{7}{9}$ .

$$1\frac{7}{9} = \frac{16}{9}$$

$$\sqrt{\frac{16}{9}} = \frac{2 \times 2}{3}$$

$$\sqrt{\frac{16}{9}} = \frac{4}{3}$$

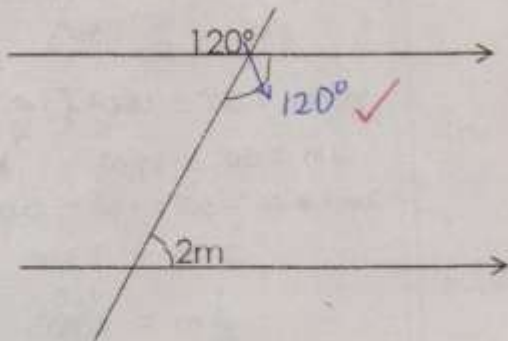
$$\sqrt{\frac{16}{9}} = 1\frac{1}{3}$$

2	16
2	8
2	4
2	2
	1

3	9
3	3
	1

4

16. Study the figure below carefully.



$$2m + 120^\circ = 180^\circ \text{ (co-int. } \angle\text{s)}$$

$$2m + 120^\circ - 120^\circ = 180^\circ - 120^\circ$$

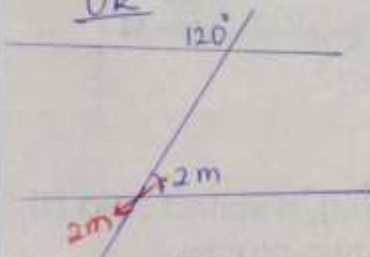
$$2m = 60^\circ$$

$$\frac{2m}{2} = \frac{60^\circ}{2}$$

$$m = 30^\circ$$

Find the value of M.

OR



$$2m + 120^\circ = 180^\circ \text{ (co-exterior } \angle\text{s)}$$

$$2m + 120^\circ - 120^\circ = 180^\circ - 120^\circ$$

$$2m = 60^\circ$$

$$\frac{2m}{2} = \frac{60^\circ}{2}$$

$$m = 30^\circ$$

17. The school library has 180 textbooks. 20% of the books are science books. Find the number of science books in the library.

Science books

$$\frac{20}{100} \times 180$$

$$18 \times 2$$

36 books

36 science books



18. Work out:  $0.09 - 0.3 + 2.01 = 0.09 + 2.01 - 0.3$

BODMAS

$$\begin{array}{r} 0.09 \\ + 2.01 \\ \hline 2.10 \end{array} - \begin{array}{r} 0.3 \\ \hline 1.8 \end{array}$$

Accept 1.80

$$0.09 - 0.3 + 2.01 = 1.8$$

19. A school bursar withdrew five thousand shilling notes numbered from AP004871 to AP004970. How many notes did he withdraw?

$$\begin{array}{r} \text{AP004} \overset{816}{970} \\ - \text{AP004} 871 \\ \hline \end{array}$$

(99 + 1) notes

100 notes

Money

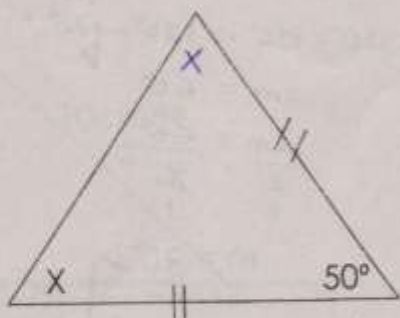
$$\text{sh. } 5000 \times 100$$

$$\text{sh. } 500,000$$

5

08

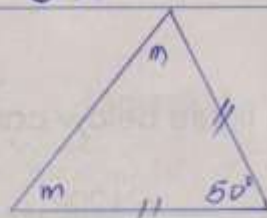
20. In the figure below, find the value of  $x$ .



$$\begin{aligned}
 x + x + 50^\circ &= 180^\circ \text{ (int. } \angle \text{ sum of } \triangle) \\
 2x + 50^\circ &= 180^\circ \\
 2x + 50^\circ - 50^\circ &= 180^\circ - 50^\circ \\
 2x &= 130^\circ \\
 \frac{2x}{2} &= \frac{130^\circ}{2} \\
 x &= 65^\circ
 \end{aligned}$$

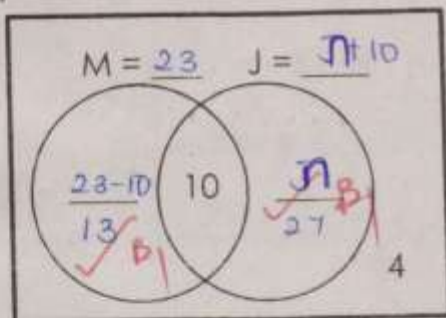
SECTION B

OR



$$\begin{aligned}
 m + m + 50^\circ &= 180^\circ \text{ (int. } \angle \text{ sum of } \triangle) \\
 2m + 50^\circ &= 180^\circ \\
 2m + 50^\circ - 50^\circ &= 180^\circ - 50^\circ \\
 2m &= 130^\circ \\
 \frac{2m}{2} &= \frac{130^\circ}{2} \\
 m &= 65^\circ
 \end{aligned}$$

21. Out of the tourists who visited Uganda, 23 visited Mbale (M),  $n$  visited Jinja (J) only, 10 visited both places and 4 did not visit any of the two places.  
 a) Represent the above information on the Venn diagram below.



(2marks)

b) If 40 tourists visited only one town, find the value of  $n$ .

(2marks)

$$\begin{aligned}
 n + 13 &= 40 \\
 n + 13 &= 40 \\
 n + 13 - 13 &= 40 - 13 \\
 n &= 27
 \end{aligned}$$

c) How many tourists visited Uganda?

(2marks)

$$\begin{aligned}
 (13 + 10) + (27 + 4) &\text{ tourists} \\
 (23 + 31) &\text{ tourists} \\
 54 &\text{ tourists}
 \end{aligned}$$

08

22. Given the numeral 3607.85.

a) Find the value of 5 in the numeral. (2marks)

$\begin{matrix} \text{Th} & \text{H} & \text{T} & \text{O} & \text{.} & \text{t} & \text{h} \\ 3 & 6 & 0 & 7 & . & 8 & 5 \end{matrix}$

$5 \times \frac{1}{100} = \frac{5}{100}$  M ✓

$= \frac{5}{100}$

$= 0.05$  A ✓

b) Find the product of the place value of 6 and the value of 8. (2marks)

$\begin{matrix} \text{Th} & \text{H} & \text{T} & \text{O} & \text{.} & \text{t} & \text{h} \\ 3 & 6 & 0 & 7 & . & 8 & 5 \end{matrix}$

$8 \times \frac{1}{10} = \frac{8}{10} = 0.8$  B ✓  
 hundreds 100 ✓

$100 \times \frac{8}{10}$

$10 \times 8$

$80$  B ✓

23. In Boko Junior School, two bells ring at intervals of 30 minutes and 40 minutes for lower primary and upper primary respectively. If they first ring together at 8:00 am,

a) After how long do they ring together again? (2marks)

LCM of 40 and 30

$M_{40} = \{ 40, 80, 120, 160, 200, \dots \}$  Accept 2 hours

$M_{30} = \{ 30, 60, 90, 120, \dots \}$  M ✓

The bells will ring again after 120 minutes

b) At what time do they ring together again? (3marks)

Change 120 minutes to hours

$\frac{120}{60} = 2$  hrs B ✓

2 hrs B ✓

The will ring together again at

10:00am

8:00 am

+ 2:00

10:00 am B ✓

7

08

DR (2marks)

2	40	30
2	20	15
2	10	15
3	5	15
5	5	5
1	1	1

$(2 \times 2) \times (2 \times 3 \times 5)$

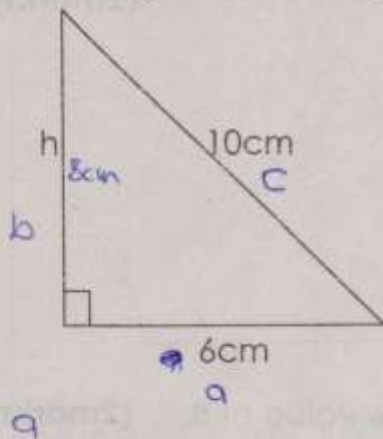
$4 \times (6 \times 5)$

$4 \times 30$

120 minutes A ✓

The bells will ring again after 120 minutes

24. a) Find the height of the triangle below.



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

$$(6\text{cm})^2 + b^2 = (10\text{cm})^2 \quad (3\text{marks})$$

$$(6\text{cm} \times 6\text{cm}) + b^2 = (10\text{cm} \times 10\text{cm}) \quad M1 \checkmark$$

$$36\text{cm}^2 + b^2 = 100\text{cm}^2$$

$$36\text{cm}^2 - 36\text{cm}^2 + b^2 = 100\text{cm}^2 - 36\text{cm}^2$$

$$b^2 = 64\text{cm}^2 \quad B1 \checkmark$$

$$\sqrt{b^2} = \sqrt{64\text{cm}^2}$$

$$b = 2 \times 2 \times 2\text{cm}$$

$$b = 4 \times 2\text{cm}$$

$$b = 8\text{cm} \quad A1 \checkmark$$

2	64
2	32
2	16
2	8
2	4
2	2
	1

$$h = 8\text{cm}$$

b) Work out the area of the triangle above.

(2marks)

$$\text{Area} = \frac{1}{2} \times b \times h$$

$$A = \frac{1}{2} \times 6\text{cm} \times 8\text{cm} \quad M1 \checkmark$$

$$A = 3\text{cm} \times 8\text{cm}$$

$$A = 24\text{cm}^2 \quad A1 \checkmark$$

25. Aber, Brenda and Charles shared a certain number of books in the ratio of 2:3:5 respectively.

a) If Brenda got 15 books, How many books did they share altogether?

Total ratio

$$2+3+5$$

$$\underline{10} \quad B1$$

Let the total share be K

$$\frac{3}{10} \text{ of } K = 15 \quad A1 \checkmark$$

$$\frac{3}{10} \times K = 15$$

$$\frac{3K \times 10}{10} = 15 \times 10$$

$$\frac{1}{10} K = \frac{50}{10}$$

$$K = 50 \text{ books} \quad A1 \checkmark$$

$$\frac{3}{10} \quad (3\text{marks}) \quad \underline{OR}$$

$$3 \text{ parts} = 15 \text{ books}$$

$$1 \text{ part} = \frac{15}{3} \text{ books} \quad M$$

$$= 5 \text{ books}$$

$$10 \text{ parts} = 10 \times 5 \text{ books}$$

$$= 50 \text{ books} \quad A1$$

b) How many more books did Charles get than Aber?

(2marks)

More in ratio

Charles - Aber

$$5 - 2 \quad M1 \checkmark$$

$$3$$

$$\frac{3}{10} \times 50 \text{ books}$$

$$3 \times 5 = 15 \text{ more books} \quad A1$$

Charles's share OR

$$\frac{5}{10} \times 50 \text{ books}$$

$$5 \times 5 \text{ books}$$

$$25 \text{ books} \quad \checkmark$$

$$8$$

More books

$$25 \quad M1 \checkmark$$

$$- 10$$

$$15 \text{ more books} \quad A1$$

Aber's share

$$\frac{2}{10} \times 50 \text{ books}$$

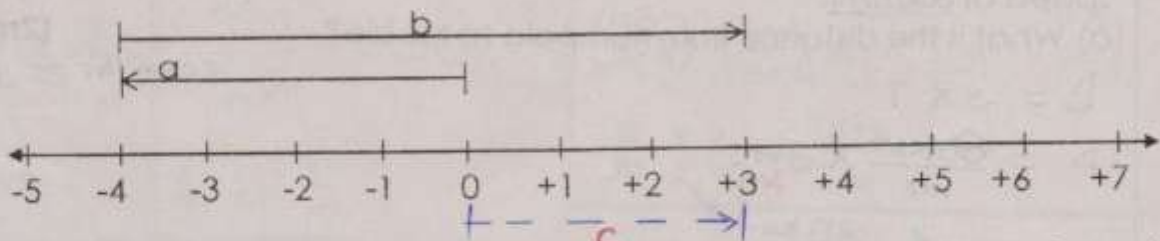
$$2 \times 5 \text{ books}$$

$$10 \text{ books} \quad \checkmark$$

10



26. Study the number line below and answer the following questions;



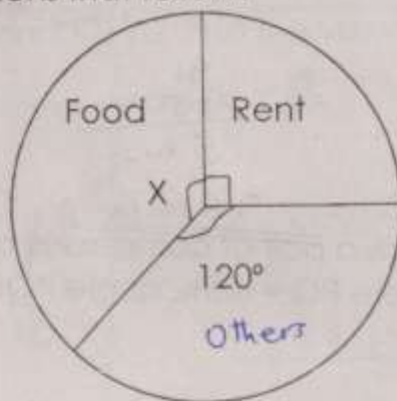
a) What integer has been represented by; (1 mark each)

i)  $a = -4$  ✓      ii)  $b = +7$  ✓      iii)  $c = +3$  ✓

b) Write the mathematical statement shown on the number line. (1 mark)

$a + b = c$   
 $-4 + 7 = +3$  ✓

27. The pie-chart below shows how a man spent his salary of sh. 72,000. Use it to answer the questions that follow.



a) Find the value X.

$X + 90^\circ + 120^\circ = 360^\circ$   
 $X + 210^\circ = 360^\circ$   
 $X + 210^\circ - 210^\circ = 360^\circ - 210^\circ$

$x = 150^\circ$  ✓

$$\begin{array}{r} 360^\circ \\ - 210^\circ \\ \hline 150^\circ \end{array}$$
 (2marks)

b) How much more did he spend on other items than on rent? (2marks)

More in degrees:  $120^\circ - 90^\circ = 30^\circ$  ✓  
 $\frac{30^\circ}{360^\circ} \times \text{sh. } 72,000$   
 $\frac{30}{360} \times 72,000$   
 $\frac{1}{12} \times 72,000$   
 $\text{sh. } 6,000$  ✓

(b) OR

Others:  $\frac{120^\circ}{360^\circ} \times 72,000 = \text{sh. } 24,000$  ✓  
 Rent:  $\frac{90^\circ}{360^\circ} \times 72,000 = \text{sh. } 18,000$

More:  $\frac{30^\circ}{360^\circ} \times 72,000 = \text{sh. } 6,000$  ✓

c) What fraction does he spend on food?

$\frac{90^\circ}{360^\circ} = \frac{1}{4}$

$\frac{5}{12}$  ✓

9

9

More:  $\text{sh. } 24,000 - \text{sh. } 18,000 = \text{sh. } 6,000$  ✓

28. A bus moving from Kampala to Mbale took 3 hours to cover the journey at a speed of 80km/hr.

a) What is the distance from Kampala to Mbale? (2marks)

$$80 \text{ km/hr} = \frac{80 \text{ km}}{1 \text{ hr}}$$

$$D = S \times T$$

$$D = \frac{80 \text{ km}}{1 \text{ hr}} \times 3 \text{ hrs}$$

$$= \frac{80 \text{ km} \times 3}{1}$$

$$D = 240 \text{ km}$$

b) If it returned at a speed of 120km/hr through the same route, Find its average speed for the whole journey. (3marks)

Returning time

$$D = 240 \text{ km}$$

$$S = 120 \text{ km/hr}$$

$$T = \frac{D}{S}$$

$$T = \frac{240 \text{ km}}{120 \text{ km/hr}}$$

$$T = 2 \text{ hrs}$$

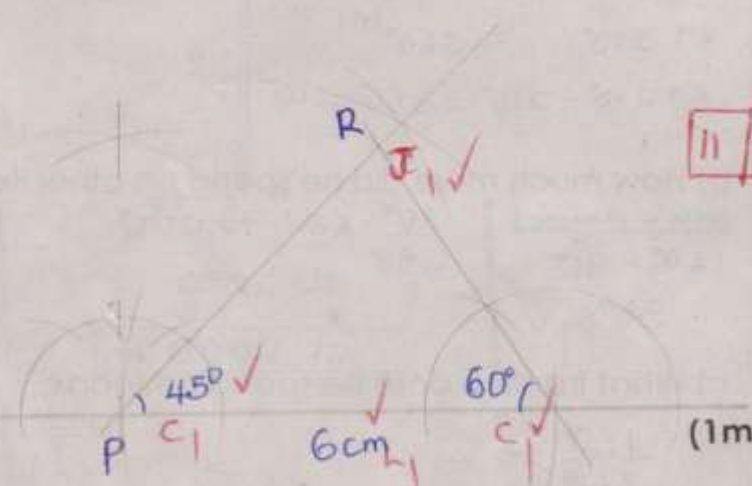
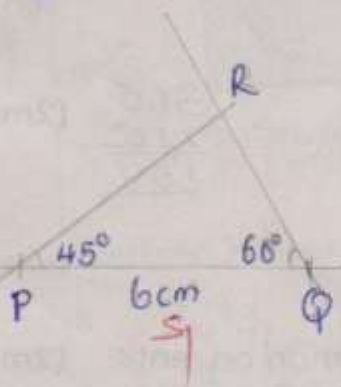
$$\text{Average speed} = \frac{\text{Total distance covered}}{\text{Total time taken}}$$

$$= \frac{(240 + 240) \text{ km}}{(3 + 2) \text{ hrs}}$$

$$= \frac{96}{5} \text{ km/hr}$$

$$= 19.2 \text{ km/hr}$$

29. a) Using a ruler, a sharp pencil, a pair of compasses and a ruler only, construct a triangle PQR where PQ = 6cm, angle PQR = 60° and angle QPR = 45°. (5marks)



b) Measure PR

$$5.2 \text{ cm}$$

Accept 5.1cm | 5.2cm | 5.3cm

30. Opoka went to Nakumat supermarket and bought the following items as shown on the table below.

a) Complete the table.

(4 marks)

Item	Quantity	Unit cost	Amount	Total Expenditure
Rice	3 kg	Sh. 3300	Sh. 9900	sh: 10,000 sh: 9,900 sh: 2,400
Cooking oil	2 litres	Sh. 5000	Sh. 10,000	sh: 22,300
Wheat flour	$\frac{1}{2}$ kg	Sh. 4800	Sh. 2400	
Total expenditure			Sh. 22,300	

b) If Opoka went with Sh. 25000 for shopping. How much was his change.

Rice	Cooking oil	Wheat flour	Change
sh: 4900 sh: 3300/kg 3kg	sh: 5000 $\times 2$ sh: 10,000	sh: 2400 $\div \frac{1}{2}$ sh: 2400 $\times 2$ sh: 4800	sh: 25,000 - sh: 22,300 sh: 2,700

31. Given that  $a = 2b$  and  $b = 3$ , Find the value of  $2(ab) + a$

(2marks)

$$\begin{aligned}
 b &= 3 \\
 a &= 2b \\
 a &= 2 \times 3 \\
 a &= 6 \\
 2(ab) + a & \\
 2(6 \times 3) + 6 & \\
 2 \times 18 + 6 & \\
 36 + 6 & \\
 42 &
 \end{aligned}$$

b) Solve:  $3(n+2) - (2n-4) = 2$

$$\begin{aligned}
 3(n+2) - (2n-4) &= 2 \\
 3n + 3 \times 2 - 2n + 4 &= 2 \\
 3n + 6 - 2n + 4 &= 2 \\
 3n - 2n + 6 + 4 &= 2 \\
 n + 10 &= 2 \\
 n + 10 - 10 &= 2 - 10
 \end{aligned}$$

$$n = -8$$

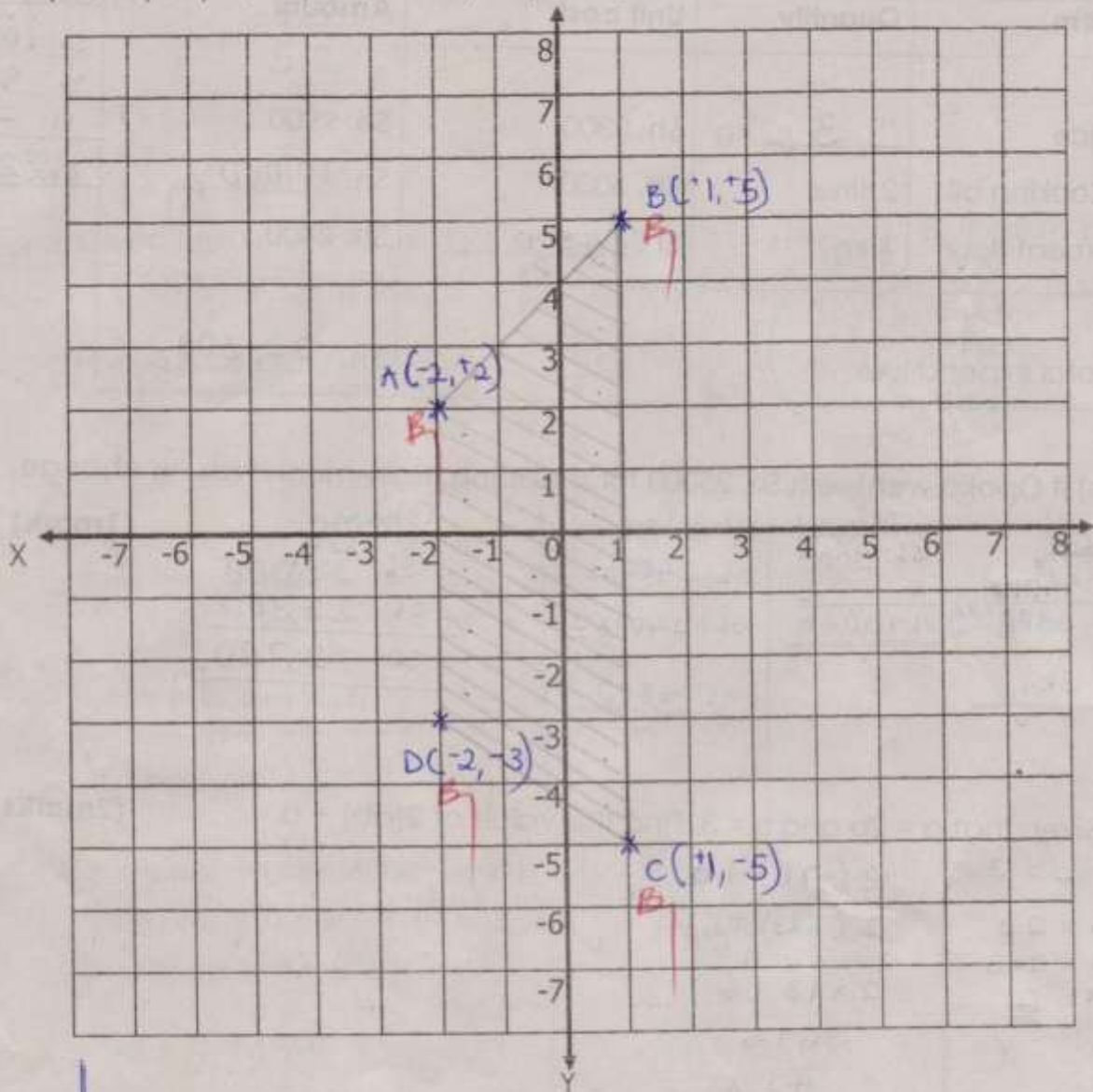
(3marks)  
1 + (2marks)

10

32. a) Plot the following points on the grid below.

A(-2, +2), B(+1, +5), C(+1, -5), D(-2, -3)

(4marks)



b) Join A to B, B to C, C to D and D to A.

(1mark)

c) Find the area of the figure formed.

(1mark)

$$A = \frac{1}{2} h(a+b)$$

$$A = \frac{1}{2} \times 3 \text{ units} (5 \text{ units} + 10 \text{ units})$$

$$A = \frac{1}{2} \times 3 \text{ units} \times 15 \text{ units}$$

$$A = \frac{1}{2} \times 45 \text{ sq units} \quad \text{END}$$

$$A = 22\frac{1}{2} \text{ sq units}$$

06