

GREENHILL SCHOOLS

JOINT PRE MOCK EXAMINATION 2024

CLASS : P.7

SUBJECT : MATHEMATICS

TIME ALLOWED : 2 HOURS 30 MINUTES

Name TR·KATO MUGERA KULASHI Stream All

Index No.: 0 7 7 0 8 4 7 4 3 0 (Not for use)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Read the following instructions carefully

1. This paper has two Sections: A and B.
2. Section A has 20 answer questions (40 marks)
3. Section B has 12 questions (60 marks)
4. Answer ALL questions. Answers to both sections must be written in the spaces provided.
5. All answers must be written using blue ink. Diagrams should be drawn in pencil.
6. Unnecessary alteration of work may lead to loss of marks.
7. Any handwriting that cannot be easily read may lead to loss of marks.
8. Do not fill anything in the box indicated for examiner's use only.

For Examiner's use only	
A	
B	
TOTAL	

SECTION A: (40 MARKS)

1. Workout: $\frac{3}{9} + \frac{2}{9}$

$$\begin{array}{r} 3+2 \\ \hline 9 \\ \hline 5 \end{array} \text{ M}$$

$$\begin{array}{r} 3+2 \\ \hline 5 \end{array} \checkmark$$

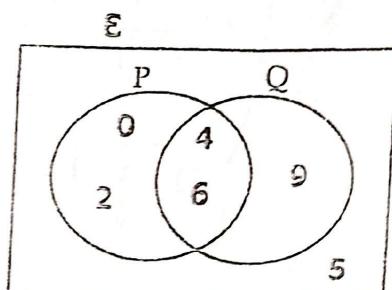
2. Write 606045 in words.

H	I	T	T	H	T	O
6	0	6	0	4	5	
Thousand	Unit					

Six hundred six thousand, forty-five

B2

3. In the Venn diagram below, find $n(P \cap Q)'$



$$(P \cap Q)' = \{0, 2, 5\} \text{ B7}$$

$$n(P \cap Q)' = 4 \text{ B7}$$

4. Simplify: $6 - 9$

$$\begin{array}{r} 6 - 9 \\ \hline 6+9 \\ \hline +15 \end{array} \text{ M} \quad \begin{array}{r} \text{Accept} \\ \hline 15 \end{array} \checkmark$$

5. Express CLIV in Hindu – Arabic numerals.

$$\begin{array}{r} C \downarrow L \downarrow IV \downarrow \\ 100 + 50 + 4 \\ \hline \text{CLIV} = 154 \end{array} \text{ B7}$$

$$\begin{array}{r} C = 100 \\ L = 50 \\ IV = +4 \\ \hline \text{CLIV} = 154 \end{array} \checkmark$$

6. Find the next number in the sequence

$$\begin{array}{r} 81, 27, 9, 3, 1 \\ \hline \div 3 \quad \div 3 \quad \div 3 \quad \div 3 \quad \div 3 \\ \hline 3 \div 3 \\ \hline 1 \end{array} \text{ B7}$$

$$\begin{array}{r} 81, 27, 9, 3, ? \\ \hline \times \frac{1}{3} \quad \times \frac{1}{3} \quad \times \frac{1}{3} \quad \times \frac{1}{3} \\ \hline \frac{3 \times 1}{3} = 1 \end{array} \checkmark$$

7. Using a ruler, a sharp pencil and a pair of compasses only, construct an angle of 30° .



8. A trader bought a radio for sh. 80,000 and later sold it for sh. 100,000. Calculate his percentage profit.

$$\begin{aligned} &\text{Sh. } 100,000 \\ &\text{Sh. } 80,000 \\ &\underline{\text{Sh. } 20,000} \quad \downarrow \\ &\frac{\text{Sh. } 20,000}{\text{Sh. } 80,000} \times 100\% \text{ m} \\ &\frac{1}{4} \times 100\% \quad \downarrow \\ &25\% \quad \underline{\text{A}} \end{aligned}$$

9. The average of $2y$, 7 and $y - 4$ is 8. Find the value of y .

$$\begin{aligned} \text{Average} &= \frac{\text{Sum of all items}}{\text{Number of all items}} \\ A.V &= \frac{2y+7+(y-4)}{3} \text{ m} \\ 8 &= \frac{2y+7+(y-4)}{3} \quad \downarrow \\ 8 &= \frac{2y+y+7-4}{3} \quad \downarrow \end{aligned} \quad \begin{aligned} 8 &= 3y + 3 \quad \downarrow \\ 8 &= \frac{1}{3}y + \frac{1}{3} \quad \downarrow \\ 8 &= y + 1 \quad \downarrow \\ 8-1 &= y+1-1 \quad \downarrow \\ 7 &= y \quad \downarrow \\ y &= 7 \quad \underline{\text{A}} \end{aligned}$$

10. A mathematics quick test ended at 3:47p.m. At what time did it end in 24hour clock system?

Accept other approaches.

Hours	Mins
3	47
$+ 12$	00
15	47

m

H ended at 15 47 hours A)

11. Solve: $3k - 4 > 8$

$$\begin{array}{r}
 3k - 4 > 8 \\
 3k - 4 + 4 > 8 + 4 \\
 3k > 12 \\
 \frac{3k}{3} > \frac{12}{3} \\
 k > 4
 \end{array}$$

A

12. Workout: $4 \sqrt{2424}$

$$\begin{array}{r}
 0606 \\
 4 \overline{)2424} \\
 -24 \\
 \hline
 24 \\
 -24 \\
 \hline
 0 \\
 \end{array}$$

$0 \times 4 = \frac{0}{24}$

$6 \times 4 = \frac{24}{002}$

$0 \times 4 = \frac{0}{24}$

$6 \times 4 = \frac{-24}{-24}$

$\therefore 2424 \div 4 = 606$

B

13. Express 750g as a fraction of a kg.

$$\begin{array}{r}
 750 \\
 1000 \\
 \hline
 750 \\
 1000 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 15 \\
 75 \\
 100 \\
 20 \\
 \hline
 15 \\
 20 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 3 \\
 15 \\
 20 \\
 4 \\
 \hline
 3 \\
 4
 \end{array}$$

A

14. The ratio of girls to boys in a class is 5:2 respectively. If there are 20 boys, how many pupils are in the whole class?

Girls	Boys	Total ratio	
5	2	7	
	20		<i>A</i>

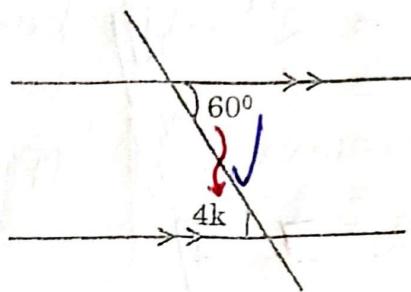
$20 \text{ boys} \div \frac{2}{7} \text{ m}$

$\frac{10}{2} \times \frac{7}{1} \text{ p}$

$(10 \times 7) \text{ pupils}$

Accept other approaches

15. Find the value of K in the figure below.

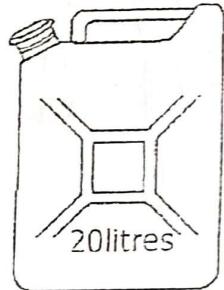


$$\begin{aligned} 4K &= 60^\circ M \\ \frac{4K}{4} &= \frac{60^\circ}{4} \\ K &= 15^\circ M \end{aligned}$$

16. Simplify: $9m - 2n - 5m + 7n$

$$\begin{aligned} 9m - 5m + 7n - 2n &\cancel{M} \\ \underline{4m + 5n} &\cancel{B} \end{aligned}$$

17. Calculate the capacity of the jerrycan below in millilitres.



$$\begin{array}{cccccc} \text{KL} & \text{HL} & \text{DL} & \text{dL} & \text{cL} & \text{ml} \\ \cancel{1} & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \checkmark \\ 1\text{L} & = & 1000\text{ml} & \checkmark \\ 20\text{L} & = & (20 \times 1000)\text{ml} & M \\ \underline{20\text{L}} & = & 20,000\text{ml} & \cancel{A} \end{array}$$

18. Find the square of 36.

$$\begin{array}{r} 36^2 \cancel{M} \\ 36 \times 36 \cancel{M} \\ 36 \\ \times 36 \\ \hline 216 \cancel{M} \\ + 108 \cancel{M} \end{array} \quad \underline{1296} \quad \text{Accept Lattice method.}$$

19. District A had 2,502,163 people and district B had 1,978,487 people in the concluded census in Uganda. Work out the range of the population in the two districts.

$$R = H - L$$

$$R = 2,502,163 \text{ people} - 1,978,487 \text{ people} \quad M$$

$$R = 523,676 \text{ people} \quad M$$

Accept arrangement vertically to their respective place values.

1	4	9	1	1	5
2	5	0	2	1	6
1	9	7	8	4	8
<hr/>					
0	5	2	5	6	7

20. Given that $V = \{0, 9, 7\}$, find the number of proper subsets in set V.

$$\text{Number of proper subsets} = 2^n - 1 \quad \boxed{\text{Accept}}$$

$$\text{Number of proper subsets} = 2^3 - 1 \quad \boxed{\text{other}}$$

$$\text{Number of proper subsets} = (2 \times 2 \times 2) - 1 \quad \boxed{\text{Approach}}$$

$$\text{Number of proper subsets} = 8 - 1 \quad \boxed{\text{Approach}}$$

$$\text{Number of proper subsets} = 7 \quad \boxed{\text{SECTION B}}$$

21. (a) Express 1101_{two} as a base ten number. (2marks)

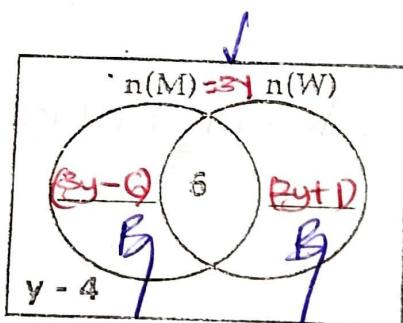
$$\begin{array}{|c|c|c|c|} \hline & 3 & 2 & 1 & 0 \\ \hline 1 & 1 & 0 & 1 & \\ \hline 2 & 2 & 2 & 2 & \\ \hline \end{array} \quad \begin{array}{l} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ 12 + 1 \\ 13 \text{ ten} \end{array}$$

(b) Given that 23_n is equal to 19_{ten} , find the value of n. (3marks)

$$\begin{array}{|c|c|} \hline 1 & 0 \\ \hline 2 & 3 \\ \hline n & n \\ \hline \end{array} \quad \begin{array}{l} (2 \times n) + (3 \times 1) = 19 \\ 2n + 3 = 19 \\ 2n + 3 - 3 = 19 - 3 \\ 2n = 16 \\ n = 8 \end{array}$$

22. In a class, $3y$ like mango juice (M), $2y+1$ like watermelon juice (W) only, 6 like both mango juice and watermelon juice while $y-4$ like none of the two.

(a) Represent the above information on the Venn diagram below. (2marks)



(b) If 21 pupils like watermelon juice, find the total number of pupils in the class.

$$(3y + 6 + 1) = 21 \quad \boxed{\text{Total number of pupils}} \quad (3\text{marks})$$

$$2y + 7 = 21 \quad (3y - 6) + 6 + (2y + 1) + (y - 4) \quad \boxed{B}$$

$$2y + 7 - 7 = 21 - 7 \quad (3y) - 6 + 6 + (2 \times 7) + 1 + 7 - 4 \quad \boxed{B}$$

$$2y = 14 \quad 21 - 6 + 6 + 14 + 1 + 3 \quad \boxed{B}$$

$$\frac{2y}{2} = \frac{14}{2} \quad 21 + 18 \quad \boxed{B}$$

39 pupils

23. The sum of three consecutive odd numbers is 69. Find the numbers.

Let the first odd number be k.

1st no	2nd no	3rd no	Sum
k	$k+2$	$k+4$	69 ✓

$$k+k+2+k+4 = 69 \text{ m}$$

$$k+k+k+2+4 = 69 \text{ ✓}$$

$$3k+6 = 69 \text{ ✓}$$

$$3k+6-6 = 69-6 \text{ ✓}$$

$$\begin{array}{r} 3k \\ \cancel{+k} \\ \cancel{+k} \\ \hline 1k \end{array} = 63 \text{ ✓}$$

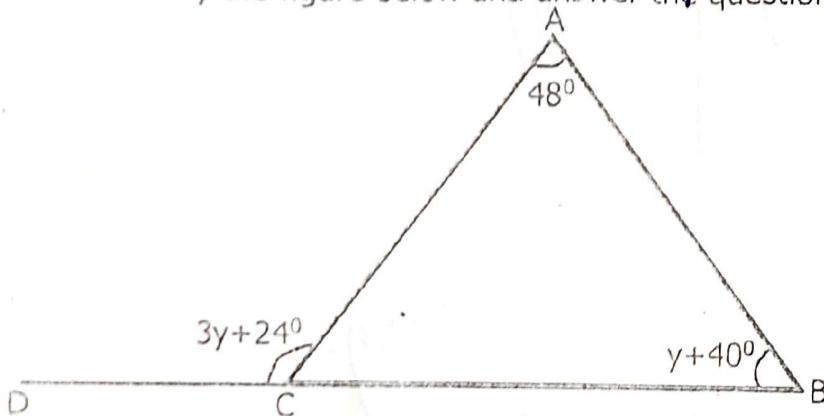
$$\begin{array}{r} 63 \\ \cancel{-5} \\ \hline 18 \end{array} \text{ ✓}$$

$$1k = 21 \text{ ✓}$$

(5marks)
These are numbers.

1st no	2nd no	3rd no
k	$k+2$	$k+4$
21	21+2	21+4
B	B	B

24. Study the figure below and answer the questions that follow.



(a) Find the value of y in degrees.

$$\begin{aligned} (3y+24^\circ) &= (y+40^\circ) + 48^\circ \text{ m} \\ 3y+24^\circ &= y+40^\circ + 48^\circ \text{ ✓} \\ 3y+24^\circ &= y+88^\circ \text{ ✓} \\ 3y+24^\circ-24^\circ &= y+88^\circ-24^\circ \text{ ✓} \\ 3y-y &= y-y+64^\circ \text{ ✓} \end{aligned}$$

(3marks)

(b) Calculate the size of angle ACB.

$$\begin{aligned} 180^\circ - 48^\circ + (y+40^\circ) \text{ m} &= 60^\circ \text{ ✓} \\ 180^\circ - 48^\circ + 32^\circ + 40^\circ &= 60^\circ \text{ ✓} \\ 180^\circ - 120^\circ &= 60^\circ \text{ ✓} \end{aligned}$$

(2marks)

$$\begin{array}{r} 48 \\ 32 \\ +40 \\ \hline 120 \end{array}$$

25. Mr. Lukooya shared books among his children Patrick, Deborah and Austin in the ratio of 3:2:7 respectively. Austin got 15 more books than Deborah.

- (a) Find the total number of books Mr. Lukooya had. (3marks)

Patrick	Deborah	Austin	More
3	2	7	$7 - 2 = 5$ 5 more 15 more books

Accept other alternatives

Total ratio $3+2+7 = 12$
 $\frac{15}{12} \times 12 = 15$ books

- (b) How many books did Patrick get? (2marks)

$\frac{3}{12} \times 36 = 9$ books

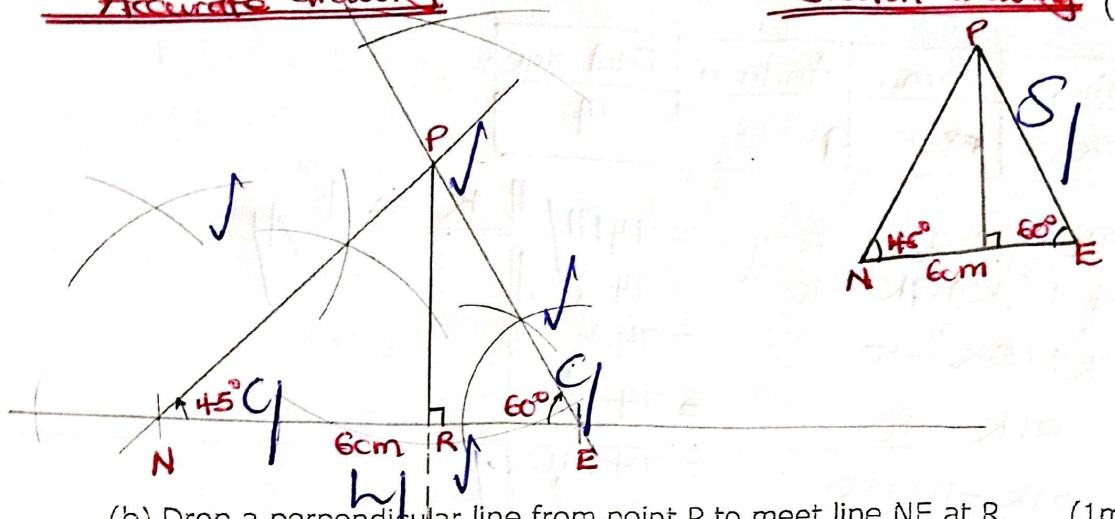
26. (a) Complete the table below. (5marks)

Quantity	Unit cost	Amount
2kg of rice	Sh. 4000 per kg	Sh. 8000
3 loaves of bread	Sh. 550 per loaf	Sh. 16500
1.5 kg of sugar	Sh. 3600 per kg	Sh. 5400
250g of salt	Sh. 2000 a kg	Sh. 500
Total expenditure		Sh. 30400

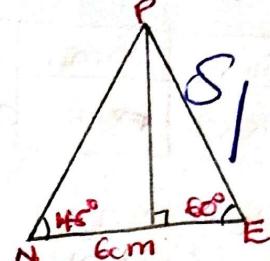
Rice	Bread	Sugar	Salt	Total exp
Sh. 4000 $\times 2$	Sh. 16500	Sh. 5400	Sh. 18000	Sh. 18000
Sh. 8000		Sh. 3600	Sh. 5400	Sh. 5400
Bread	Sh. 16500	Sh. 3600	Sh. 500	Sh. 500
Sh. 16500	3	12	12	Sh. 30400

27. (a) Using a ruler, a pencil and a pair of compasses only, construct a triangle PEN in which angle NEP = 60° , angle PNE = 45° and line NE = 6cm.

Accurate drawing



Sketch drawing (4marks)



- (b) Drop a perpendicular line from point P to meet line NE at R. (1mark)

28. The total distance round a circle is 88m.

- (a) Calculate the diameter of the circle. (2marks)

$$\begin{aligned}
 C &= \pi D \\
 \pi D &= C \\
 \frac{22}{7}D &= 88 \text{ cm m} \\
 \frac{22D}{7} &= 88 \text{ cm } \checkmark \\
 \therefore D &= 28 \text{ cm. } \checkmark
 \end{aligned}$$

∴ The diameter of the circle is 28cm.

- (b) Find its area. (3marks)

$$A = \pi r^2$$

$$A = \frac{22}{7} \times 14 \text{ cm} \times 14 \text{ cm } \checkmark$$

$$A = \frac{22}{7} \times 44 \text{ cm} \times 14 \text{ cm } \checkmark$$

$$A = \frac{22}{7} \times 2 \text{ cm} \times 14 \text{ cm } \checkmark$$

$$A = 616 \text{ m}^2 \checkmark$$

A

29. Siima is thrice the age of Sarah who is 3k years old and Andrew is 10 years younger than Siima. Their total age is 74 years. (4marks)

(a) Workout the value of k.

Siima	Sarah	Andrew	Total age
$3k \times 3$	$3k$	$9k - 10$	74

$$\begin{aligned}
 3k + (3 \times 3k) + 9k - 10 &= 74 \text{ m} \\
 3k + 9k + 9k - 10 &= 74 \\
 21k - 10 &= 74 \\
 21k - 10 + 10 &= 74 + 10 \text{ B} \\
 21k &= 84 \\
 \frac{21k}{21} &= \frac{84}{21} \text{ B}
 \end{aligned}$$

(b) How old is Andrew? (1mark)

$$\begin{aligned}
 9k - 10 &= 26 \text{ years} \\
 (9 \times 4) - 10 &= 26 \\
 36 - 10 &= 26
 \end{aligned}$$

30. The travel time table below shows how YY bus travels from Kampala to Mbale.

Town	Arrival time	Departure time
Kampala		6:15a.m
Namawojjolo	7:45a.m	8:00a.m
Jinja	9:00a.m	9:30a.m
Mbale	11:15a.m	

(a) For how long did the bus stay at Namawojjolo? (2marks)

$$\begin{array}{r}
 \text{Hrs} \quad \text{Mins} \\
 8 \quad 08 \text{ m} \\
 - 7 \quad 45 \\
 \hline
 15 \text{ minutes}
 \end{array}$$

(b) In which town was that bus at 9:11a.m? (1mark)

Jinja B

(c) If the distance from Kampala to Mbale is 235km, calculate the average speed of the bus for the entire journey. (2marks)

Hrs Mins $\begin{array}{r} 11 : 15 \\ - 6 : 15 \\ \hline 5 \quad 00 \end{array}$	<u>Average speed:</u> $AVS = \frac{IDC}{TTT}$	$AVS = 47 \text{ km/h}$
--	--	-------------------------

5 hours

AVS = $\frac{235 \text{ km}}{5 \text{ hours}}$

AVS = 47 km/h

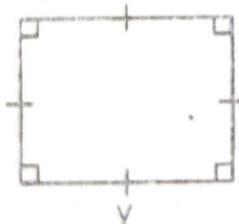
A7

31. (a) Prime factorise 72 and write its prime factors in power form. (2marks)

$$\begin{array}{r} 72 \\ | \\ 2 \quad 36 \\ | \\ 2 \quad 18 \\ | \\ 2 \quad 9 \\ | \\ 3 \quad 3 \\ | \\ 3 \quad 1 \end{array}$$
 $2^3 \times 3^2$

B1

(b) The area of the figure below is 64 cm^2 . (3marks)



Accept other alternatives

Find the value of y .

$$\text{Area} = s^2$$

$$A = y^2$$

$$\sqrt{y^2} = A$$

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

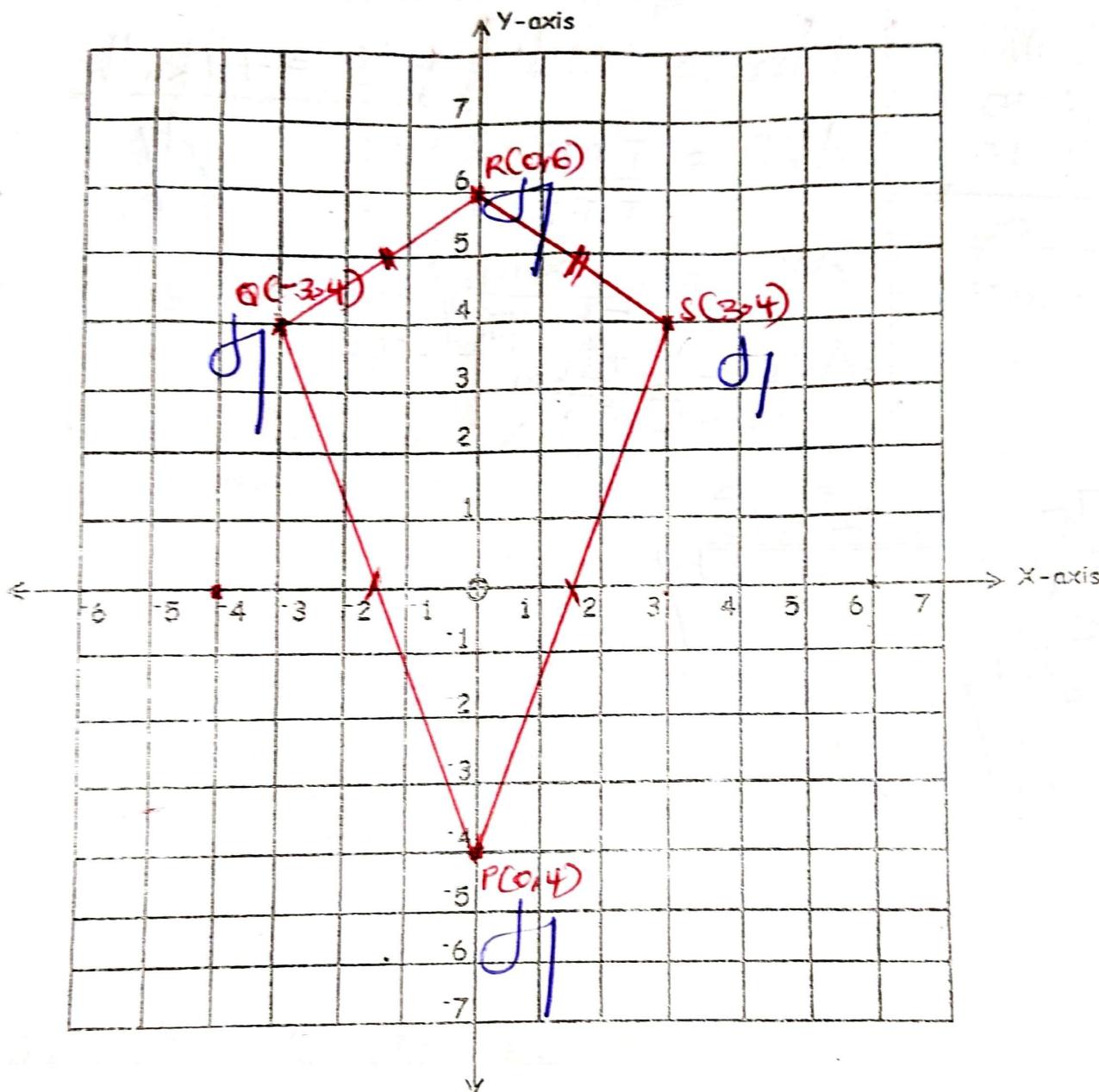
$$\sqrt{8 \times 8} = \sqrt{(8 \text{ cm} \times 8 \text{ cm})} \text{ B7}$$

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

32. (a) Plot these points on the graph below.

P(0, -4), Q(-3, 4), R(0, 6) and S(3, 4).

(4marks)



(b) Join P to Q, Q to R, R to S, S to P and name the shape formed. (1mark)

The shape formed is a kite

B1

***** END *****