THE PRIME EXAMINATIONS 2024
P.7 MAGIC SET III
MATHEMATICS

Prime Consult

Time allowed 2 hours 30 minutes

INDEX NO:

Candidate's Name: ....

Candidate's Signature: ....

District ID No.: ....

FOR WELL EXPLAINED LESSON VIDEOS WITH EXPERT TEACHERS
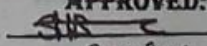DOWNLOAD THE PRIME LEARN APP
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READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. Do not write your **school** or **district name** anywhere on this paper.

2. This paper has **two** sections: A and B Section A has **20** questions and section B has **12** questions. The paper has **9 printed pages**.

3. Answer **all** questions. **All** the working for both sections **A** and **B** must be shown in the spaces provided.

4. **All** working **must** be done using a **blue** or **black** ball point pen or ink. Any work done in pencil other than graphs and diagrams will **not** be marked.

5. **No calculators** are allowed in the examination room.

6. Unnecessary **changes** in your work and handwriting that cannot easily be read may lead to **loss of marks**.

7. Do **not** fill anything in the table indicated "**For Examiners' use only**", and those boxes inside the question paper.

QUESTION NUMBER	MARKS ATTAINED	INITIALS
1 – 5		
6 – 10		
11 – 15		
16 – 20		
21 – 22		
23 - 24		
25 -26		
27 - 28		
29 – 30		
31 – 32		
TOTAL		

FOR EXAMINERS' USE ONLY

APPROVED:
Consultant
Mathematics Department (PEC)

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THE PRIME; SCHEMING FRAME WORKS, PUPILS' WORKBOOKS, LESSON COURSE BOOKS, HOLIDAY PACKAGES, LEARNING GAMES AND MORE...

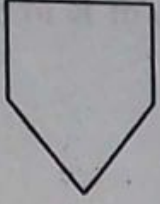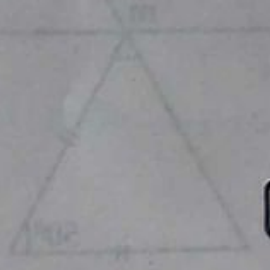Organised by: Prime Educational Consult   @2024   Kampala

Turn Over

Section A (40 Marks)

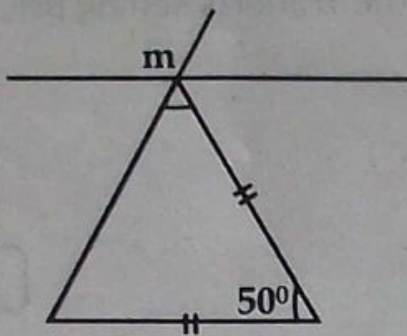|			
1	Workout: 57 + 342	2	Write in figures; Four hundred six thousand ninety eight and sixteen hundredths.
3	Simplify: 7k – 3p – 4p + k	4	Given that set R = {2,3,5}, List down all proper subsets of set R.
5	Work out 4 x -3 using a number line.		

6	Find the sum of all square numbers between 20 and 40.	7	How many $\frac{3}{4}$ packets of sugar can be got from 9kg of sugar?
8	A seminar started at 20 minutes to midday and ended at 3:00pm. How long did the seminar last?		

9	How many lines of folding symmetry has the shape below?	10	A trader bought two hens at sh.40000 and sold each at a profit of sh.3500. Calculate the trader's selling price for each hen.
11	On a farm, there 48 cows and 72 goats. If the farmer is to sell one of the animals to pay his child's fees, find the probability that he will sell a cow.	12	Convert $0.45m^3$ to cm^3.
13	Given that $x = -3$ and $y = 8$, find the value of $2y - x^3$.	14	Work out: 42_{five} x 3.

15	Find the size of angle marked m in the figure below.	16	Given that $F_K = \{2_1, 2_2, 3_1, 5_1\}$ and $F_L = \{2_1, 3_1, 3_2\}$. Express L as a ratio of K in the simplest form.

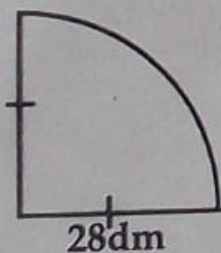**15** Find the size of angle marked m in the figure below.

m

50^0

16 Given that $F_K = \{2_1, 2_2, 3_1, 5_1\}$ and $F_L = \{2_1, 3_1, 3_2\}$.

Express L as a ratio of K in the simplest form.

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17 Find the range of;

12, 0, -6, 4, -3, 8 and -4.

18 Increase sh **48000** in the ratio of 6:5.

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19 Work out the area of the figure below.
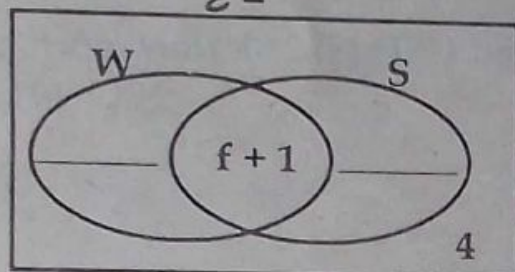
28dm

20 Workout: $4466 \div 11$

Section B (60 Marks)

21 At a party, 18 guests took water (W) only, 2f guests took soda (S) but not water, (f+1) guests took both water and soda while 4 guests took neither of the drinks.

(a) Complete the Venn diagram below. *(02 marks)*

$\varepsilon =$

```
 ┌──────────────────────────┐
 │  W            S          │
 │  ┌────┬────┐              │
 │  │    │    │              │
 │ ─┼── (f + 1) ──┼──        │
 │  │    │    │              │
 │  └────┴────┘              │
 │                 4        │
 └──────────────────────────┘
```

(b) Give that n(W– S)' = 20, find the value of f. *(02 marks)*

(c) Find the probability of picking at random a guest who took both drinks. *(01 mark)*

22 (a) Write 39.245 in expanded form using powers of ten. *(02 marks)*

(b) Work out: $(1.9 \times 4.6) + (4.6 \times 9)$ *(02 marks)*

23 Study the exchange rates below and use them to answer the question that follow.

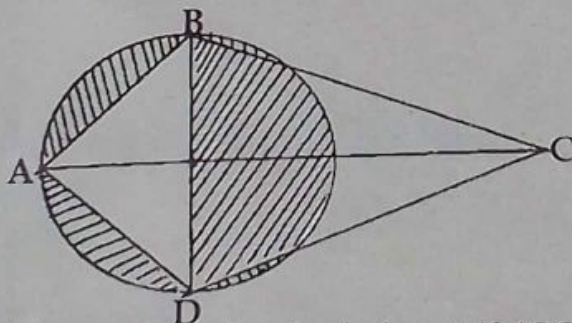| GBP (£) 1 = Ush.5,000 |
| USD ($) 1 = Ush.3,700 |
| Ksh 1 = Ush.30 |

(a) Dauda came to Uganda with GBP (£) 120 and USD ($) 250. How much Uganda currency did he get in exchange?　　　　　　　　　　　(03 marks)

(b) If a watch costs USD $ 360, what will be the equivalent cost of the watch in Ksh?　　　　　　　　　　　(02 marks)

24 Study the figure below and answer the questions that follow. If BD = 14cm and AC= 18cm.

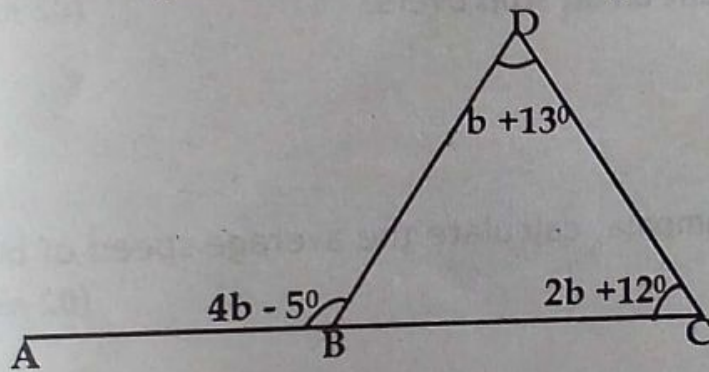Find the area of the shaded part if **ABCD** is kite.　　　　　　　　　　　(05 marks)

25 The mean of the marks 60, g, 28, (g+7), 40 and 35 is 40.

(a) Find the value of **g**. (03 marks)

(b) Find the median mark. (02 marks)

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26 Use the figure below to answer the questions.

(a) Find the value of **b**. (03 marks)

(b) Find the size of angle DBC. (02 marks)

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27 The table below shows how a bus travelled from Kampala through Mukono, Jinja and Iganga to Busia. Study and use it to answer the questions that follow.

Town	Arrival	Departure
Kampala		10 50hr
Mukono	12 20hr	12 25hr
Jinja	13 50hr	14 05 hr
Iganga	14 35hr	14 40hr
Busia	16 20hr	

(a) At what time in 12 hour did the bus reach Iganga?   (02 *marks*)

(b) Find the total time the bus spent on all stop overs.   (02 *marks*)

(c) If Busia is **220km** away from Kampala, calculate the average speed of bus for the whole journey.   (02 *marks*)
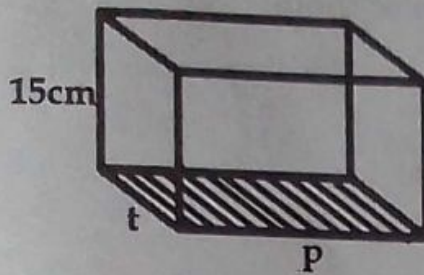
28 (a) Decrease sh 800,000 by 20% then by 15%.   (03 *marks*)

(b) Express 400m as a percentage of 5km.   (02 *marks*)

29 The container below has a capacity of 7.5 litres when completely full.

15cm

t

P

(a) Find the area of the shaded part. (03 marks)

(b) If the value of t is 20cm, find the value of p. (02 marks)

30 Stella takes 18 mins to mop a room when she works alone while Hadijah takes 36 mins to mop the same room. One day, the two girls agreed to work together.

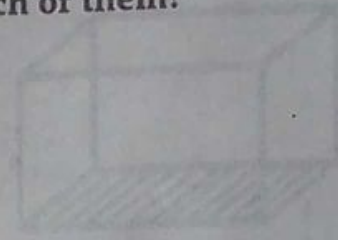(a) Find the time they both took to mop the same room. (03 marks)

(b) How many such rooms can the two girls mop if they work together for 60 minutes? (02 marks)

31 Saudah is x years old. Her son is two fifth as old as the mother and the daughter is 4 years older than the son. The difference between the age of the mother and that of the daughter is 20 years. How old is each of them? (05 marks)

32 (a) Using a ruler, a pencil and a pair of compasses only construct triangle EFG in which Line EF = 8cm, FG = 5cm and angle EFG = 105⁰. (04 marks)

(b) Measure the length of line EG. (01 mark)

Answering techniques.
Candidates should master answering in brief and precise way to be more understandable and clear.
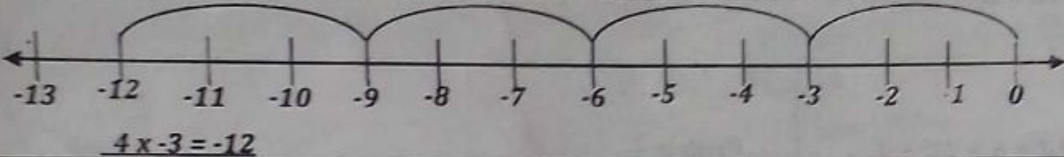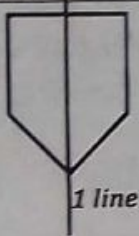
THE PRIME MAGIC SET III EXAMINATIONS 2024
P.7 MATHEMATICS MARKING GUIDE
SECTION A (40 MARKS)

NO	SOLUTION	MARKS	COMMENT	NO	SOLUTION		COMMENT
1	$\begin{array}{r}342\\+\ 57\\\hline 399\end{array}$	M_1 A_1	Follow through	2	406098. 16	B_2	Follow through
3	$7k + k - 3p - 4p$ $8k - 7p$	B_2	Follow through	4	{ }, {2}, {3}, {5}, {2,3}, {7 }, {3,5}	B_1 B_1	Follow through
5	$4 x -3 = -12$					B_2	Follow through
6	{25, 36} 25 + 36 = 61	B_2	Follow through	7	$9 \div \frac{3}{4}$ $9 \times \frac{4}{3}$ = 12 packets	B_2	Follow through
8	3:00pm = 1500h Hr min $^{14}\cancel{15}$ 00 -11 40 3 20 3h 20min.	M_1 A_1	Follow through	9	1 line	B_2	Follow through
10	$\frac{sh\ 40000}{2}$ = sh 20000 = sh 20000 + sh 3500 = sh 23,500	M_1 A_1	Follow through	11	$\frac{48}{48+72}$ $\frac{48}{120}$	M_1 A_1	Follow through
12	$\frac{45}{100} \times 1000000cm^3$ $= 450000cm^3$	M_1 A_1	Follow through	13	$(2 \times 8) - (-3 \times -3 \times -3)$ $16 - (-27)$ $16 + 27$ $= 43$	M_1 A_1	Follow through
14	$\begin{array}{r}4\ 2_{five}\\ \times\ 3\\\hline 231_{five}\end{array}$ $6 \div 5 = 1rem$ $13 \div 5 = 2rem1$	M_1 A_1	Follow through	15	$m + m + 50^0 = 180^0$ $2m + 50^0 = 180^0$ $2m + 50^0 - 50^0 = 180^0 - 50^0$ $\frac{2m}{2} = \frac{130^0}{2}$ $m = 65^0$	B_1 B_1	Follow through
16	$K = 2 \times 2 \times 3 \times 5$ $\frac{\cancel{18}}{\cancel{60}}$ $K = 60$ $L = 2 \times 3 \times 3$ 3 : 10 $L = 18$	M_1 A_1	Follow through	17	$12 - (-6)$ $12 + 6$ $= 18$	B_1 B_1	Follow through
18	$\frac{6}{5} \times 48000^{9600}$ 6×9600 Sh 57600	M_1 A_1	Follow through	19	$\frac{1}{4} \times \frac{22}{7} \times 28^4 \times 28)dm^2$ $\frac{22 \times 4 \times 28}{4}$ $= 616dm^2$	M_1 A_1	Follow through
20	$\frac{4466}{11}$ = 406					M_1 A_1	Follow through

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21 (a)

Venn diagram: rectangle labeled $n(\varepsilon)$, two overlapping ovals W and S. W region: 18, intersection: $f+1$, S region: $2f$, outside: 4
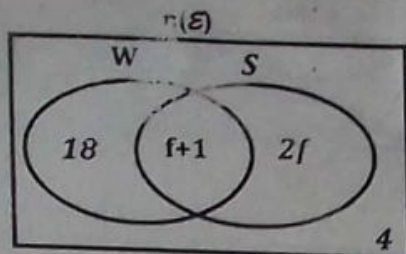
b) $f + 1 + 2f + 4 = 20$

$\quad 3f + 5 = 20$

$\quad 3f = 20 - 5$

$\quad \dfrac{3f}{3} = \dfrac{15}{3}$

$\quad f = 5$

c)
$f+1$	$18 + 6 + 12 + 4$	$Prob = \dfrac{6}{40}$
$5 + 1$	$24 + 16$	
$= 6$	$= 40$	

$\dfrac{6}{38}$

05

22

(a)
```
1 0 . -1 -2 -3
39.  2  4  5
```
$(3 \times 10^1) + (9 \times 10^0) + (2 \times 10^{-1}) + (4 \times 10^{-2}) + (5 \times 10^{-3})$

(b) $(1.9 + 9) \times \dfrac{46}{10}$

$\quad 10.9 \times \dfrac{46}{10}$

$\quad \dfrac{109}{10} \times \dfrac{46}{10}$

$\quad \dfrac{5014}{100}$

$\quad = 50.14$

05

23

(a) Ush 5000×120

$\quad = $ Ush. 600000

Ush. 250×3700

$\quad = $ Ush. 925000

Ush. 925000

Ush. $\underline{600000}$

Ush. $\underline{1,525,000}$

(b) $\dfrac{3700 \times \overset{21}{\cancel{630}}}{\underset{1}{\cancel{30}}}$

3700×21

Ksh. $\underline{77,700}$

05

24

Area of the circle

$A = \pi r^2$

$A = \dfrac{22}{7} \times 7cm \times 7cm$

$\underline{A = 154cm^2}$

Area of triangle ABD

$A = \dfrac{1}{2} \times b \times h$

$A = \dfrac{1}{2} \times 14cm \times 7cm$

$\underline{A = 49cm^2}$

Area of shaded part

$A = 154cm^2 - 49cm^2$

$\underline{A = 105cm^2}$

05

25

(a)
	M_1	Follow through
$\dfrac{g+g+7+60+28+40+35}{6} = 40$	A_1	
$2g + 170 = 240$	M_1	
$2g + 170 - 170 = 240 - 170$		
$\dfrac{\cancel{2}g}{\cancel{2}} = \dfrac{\overset{35}{\cancel{70}}}{\underset{21}{\cancel{12}}}$	A_1	
$g = 35$	**05**	

b) $60, 35, 28, 42, 40, 35$

$\cancel{60}, \cancel{42}, 40, 35, \cancel{35}, \cancel{28}$

$\dfrac{40 + 35}{2} = \dfrac{75}{2}$

$= 37.5$

26

a) $4b - 5^0 = 2b + 12^0 + b + 13^0$

$4b - 5^0 = 2b + b + 12^0 + 13^0$

$4b - 5^0 + 5^0 = 3b + 25^0 + 5^0$

$4b = 3b + 30^0$

$4b - 3b = 30^0$

$\underline{b = 30^0}$

27

(a)
```
  14  35
-  12  00
   2 : 35pm
```
	M_1	Follow through
	A_1	

(b)
```
  12  25        14  05
  12  20        13  50
   5mins        15mins
```
	M_1	
	A_1	

	b) $4b - 5$ $(4 \times 30) - 5$ $120^0 - 50$ $\underline{= 115^0}$	$180^0 - 115^0$ $\underline{= 65^0}$ **05**		$\begin{array}{r} 14 \quad 40 \\ \underline{14 \quad 35} \\ \underline{5 \, mins} \end{array}$ $5 + 15 + 5$ $\underline{= 25 \, mins}$ **(c)** $\quad Hr \qquad Mm$ $\begin{array}{r} 15 \\ \cancel{16} \quad 20 \\ - \, 10 \quad 50 \\ \hline 5hr \quad 30mins \end{array}$ $\quad \begin{array}{l} 60 + 20 \\ 80 - 50 \\ = 30 \end{array}$ $= 5\frac{1}{2}hr$ $S = D \div T$ $= 220km \div 5\frac{1}{2}hr$ $= 220km \div \frac{11}{2}hr$ $= \cancel{220}km^{\,20} \times \frac{2}{\cancel{11}}hr$ $= 20km \times 2$ $\underline{= 40km/hr}$	**05**

| 28 | **(a)** $100\% - 20\%$
 $= 80\%$
 $\frac{80}{100} \times sh \, 800,000$

 80×8000
 $\underline{= sh \, 640,000}$

 (b) $\frac{400}{5000} \times 100$
 $\underline{= 8\%}$ | $100\% - 15$
 $= 85$
 $\frac{85}{100} \times sh \, 640,000$
 $80 \times 6,400$

 $\underline{= sh \, 544,000}$

 05 | 29 | **(a)** $1litre = 1000cm^3$
 $= \frac{75}{10} \times 1000$

 $= 7500cm^3$

 $\frac{7500cm}{15cm}$
 $\underline{= 500cm^2}$

 (b) $\frac{500cm}{20cm}$
 $\underline{= 25cm}$ | M_1

 A_1

 M_1

 A_1

 05
 Follow through |

| 30 | **(a)**
 <table><tr><th>Stella</th><th>Hadijah</th></tr><tr><td>$\frac{1}{18}$</td><td>$\frac{1}{36}$</td></tr></table>
 $\frac{1}{18} + \frac{1}{36} = \frac{2+1}{36}$

 $= \frac{3}{36}$

 $= \frac{1}{12}$

 $1 \div \frac{1}{12}$

 $1 \times \frac{12}{1}$

 $\underline{= 12 \, minutes.}$

 b) $\frac{60}{12} = 5 \, rooms$ | | 31 | <table><tr><th>Saudah</th><th>Son</th><th>Daughter</th></tr><tr><td>x</td><td>$\frac{2}{5}x$</td><td>$\frac{2}{5}x + 4$</td></tr></table>
 $x - (\frac{2x}{5} + 4) = 20$
 $x - \frac{2x}{5} - 4 = 20$
 $5 \times x - \frac{2x}{5} \times 5 = 24 \times 5$
 $5x - 2x = 120$
 $\frac{3x}{3} = \frac{120}{3}$
 $\underline{x = 40}$

 Saundah
 $x = 40 \, years$
 Son
 $\frac{2}{5} \times 40^{\,8}$
 $\underline{= 16 \, years}$ $\qquad$ **Daughter**
 $\qquad\qquad 16 + 4$
 $\qquad\qquad = 20 \, years$ | M_1

 A_1

 M_1

 A_1

 05
 Follow through |

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