Tr. Alex

GREENHILL PRIMARY SCHOOLS

PRE-PLE JOINT MOCK EXAMINATION 2024

(SET IV)

MATHEMATICS

Time allowed: 2 hours 30 minutes

Index No.	Random No.						Personal No.		

Candidate's Name: .....

Stream: ..... Campus: .....

Signature: .....

Do not open this booklet until you are told to do so.
Read the following instructions carefully

1. This paper consists of two sections: A and B.
2. Section A has 20 questions (40 marks).
3. Section B has 12 questions (60 marks)
4. Attempt all questions. Answers to both sections must be written in spaces provided.
5. All answers must be written in blue or black ballpoint pen or ink but not in pencil.

   Diagrams should be drawn in pencil.
6. Crossing out of answers will 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 EXAMINERS USE ONLY		
QN.NO.	**MARK**	**SIGN**
A		
B		
TOTAL		

SECTION A:

1. Set **W**={2, 3, 5, 7, 11}. How many proper subsets are in set **W**?

$n(\subset) = 2^n - 1$

$2^5 - 1$

$(2\times2\times2)\times(2\times2) - 1$

$8\times4 - 1$

$32 - 1$

31 proper subsets

2. Express $(5\times10^2) + (4\times10^1) + (8\times10^{-2})$ as a single number.

$5\times10\times10 + 4\times10 + 8\times\frac{1}{10\times10}$

$500 + 40 + \frac{8}{100}$

$500 + 40 + 0.08$

500
40
+ 0.08
54 0.08

3. Round off **78293** to the nearest hundreds.

78293 R.d

R.pv

78200
+ 100
78300

4. Write **98** in base five.

B	N	R
5	98	///
5	19	3
5	3	4
	0	3

$98 \rightarrow 343_{five}$

5. Use only distributive property to work out: (4.4x13) + (5.6x13)

$13(4.4+5.6)$

13×10

130

$\overset{1}{5}.6$

$+\underline{4.4}$

10.0

6. Find the LCM of 12, 18 and 9.

2	12	18	9
2	6	9	9
3	3	9	9
3	1	3	3
	1	1	1

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

4×9

$\underline{36}$

7. Workout: $4\frac{1}{2} + 1\frac{1}{3}$

$4 + 1 + \left(\frac{1}{2} + \frac{1}{3} = \frac{3+2}{6}\right)$

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

$\underline{5\frac{5}{6}}$

8. Express 250 metres as a ratio to 2 kilometres.

1 km → 1000m

2km → 2 × 1000m

→ 2,000m

÷1

~~250m~~

~~2,000m~~

~~40~~

8

$\frac{1}{8}$ = 1:8

9. From point **O**, drop a perpendicular line to meet **TK** at point **G**.

.O

T K

10. Find the size of each exterior angle of a regular octagon.

Ext∠ = $\frac{360°}{\text{No of sides}}$

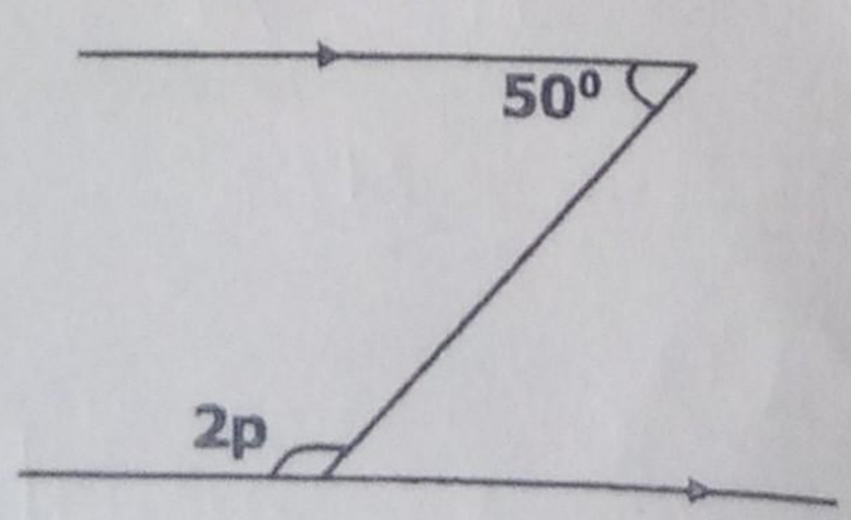
45

$\frac{360°}{8}$

1

Ext∠ = 45°

11. Use the diagram below to work out the value of **p**.



2p + 50° = 180° (co-int∠s)

2p + 50° − 50° = 180° − 50°

65

$\frac{2p}{2}$ = $\frac{130°}{2}$

1

p = 65°

12. Solve: $2 - 3k < 17$

$2-2-3k < 17-2$

$-3k < 15$

$-\frac{1}{3}k > \frac{15}{-3}^{5}$

$k > -5$

13. Workout: $4 + 3 =$ _____ (finite 5) using a dial.

$4+3 = 2 \text{ (finite 5)}$

14. Solve for **m**:

$4 - 2(4\mathbf{m} - 2) = 0.$

$4 - 8m + 4 = 0$

$4 + 4 - 8m = 0$

$8 - 8m = 0$

$8 - 8 - 8m = 0 - 8$

$\frac{-8m}{-8} = \frac{-8}{-8}$

$m = 1$

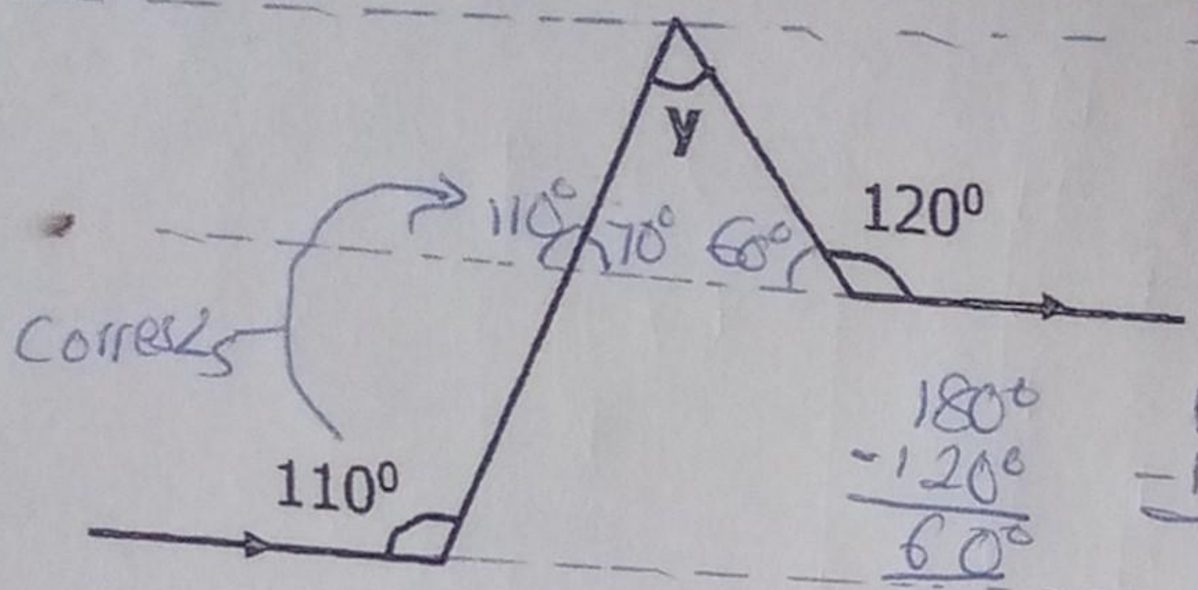
15. George took 2 hours 40 minutes to revise his books and 3 hours 50 minutes washing his clothes. How long did he take doing the two activities?

H	M
2	40
+3	50
6	30

$90 \div 60 = 1\text{r}30$

$6\frac{1}{2}$ hours.

16. In the figure below, find the size of angle marked y.



$y + 70° + 60° = 180°$

$y + 130° = 180°$

$y + 130° - 130° = 180° - 130°$

$y = 50°$

$180° - 120° = 60°$

$180° - 110° = 70°$

17. Lillian bought 4 litres and 450 millilitres of paraffin in the morning. In the evening, she bought more 2 litres 550 millilitres of paraffin. How much paraffin did she buy that day?

Litres	Ml
$4^{①}$	450
$+\ 2$	550
7	000

$450 + 550 = 1000$

$1000 \div 1000 = 1$ L

She bought 7 Litres.

18. There are 𝍸 𝍸 𝍸 𝍸 𝍸 //// pupils in a p.6 class. Write this number of pupils in Roman numerals.

$5 + 5 + 5 + 5 + 5 + 4$

29 pupils.

$20 + 9$

XX IX

XXIX pupils.

19. Set Z= {All counting numbers}. What type of set is set Z?

Infinite Set

20. The transport from Kampala to Wakiso was sh.4500 but it is now sh.6000. In what ratio did the transport increase?

New / old

sh.6000 / sh.4500

604 / 45 / 3

$\frac{4}{3} = 4:3$

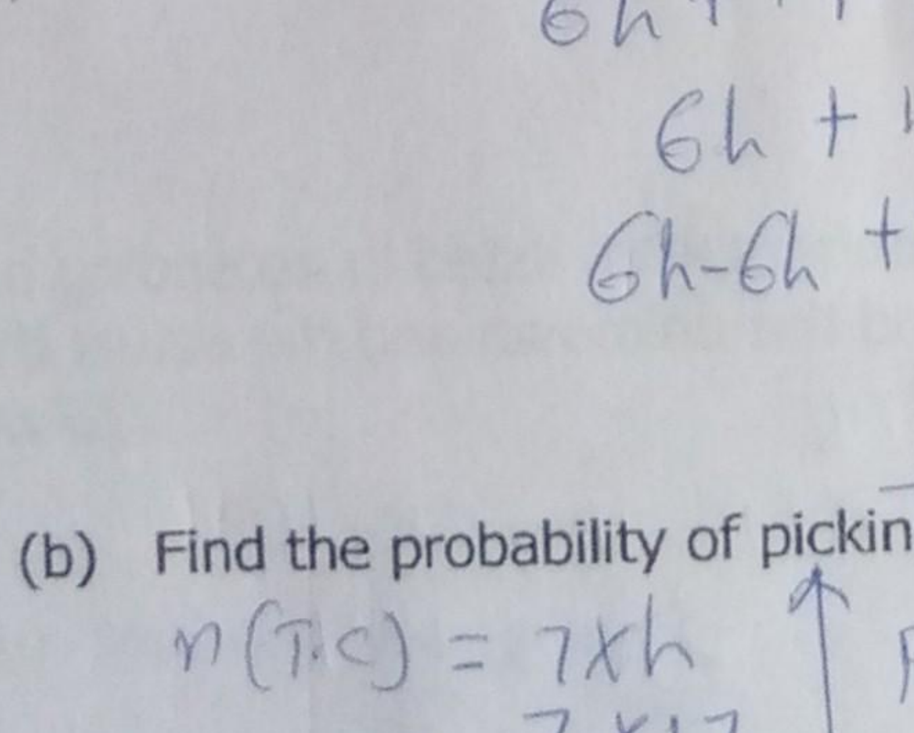
SECTION B:

Answer all questions in this section

Marks for each question are indicated in brackets

21. The Venn diagram below shows pupils who drank Pepsi(**P**) and Coke(**C**) at a picnic. (**h**-2) did not drink anything.

$n(\Sigma) = 7h$



(a) Find the value of **h**. ***(3 marks)***

$3h + h + 4 + h + 15 + h - 2 = 7h$

$4h + h + h + 4 + 15 - 2 = 7h$

$6h + 19 - 2 = 7h$

$6h + 17 = 7h$

$6h - 6h + 17 = 7h - 6h$

$17 = h$

$h = 17$

(b) Find the probability of picking a pupil who took none of the drinks. ***(2 marks)***

$n(T.C) = 7 \times h$

7×17

119

$n(D.C) = h - 2$

$17 - 2$

15

$P = \frac{n(D.C)}{n(T.C)}$

$P = \frac{15}{119}$

22. Convert 24_{six} to base three. **(4 marks)**

$(2\times6^1)+(4\times6^0)$

$2\times6+4\times1$

$12+4$

16_{ten}

B	N	R
3	16	1
3	5	1
3	1	2
	0	1

$24_{six} \rightarrow 121_{three}$

23. (a) Simplify: $\dfrac{2p^2 \times 6p^3}{4p^3}$ **(2 marks)**

$\dfrac{2\times p\times p\times 6\times p\times p\times p}{4\times p\times p\times p}$

$3\times p\times p$

$3p^2$

(b) Find the value of k.
$2^2 \times 5^k = 100$ **(2 marks)**

$2^2\times5^k = 2^2\times5^2$

$5^k = 5^2$

$k = 2$

2	100
2	50
5	25
5	5
	1

24. A series of four consecutive odd numbers were listed in ascending order. If the last two numbers add up to **28**, find the unknown and the actual third number. **(5 marks)**

Let 'n' rep the first odd no

1st	2nd	3rd	4th
n	n+2	n+4	n+6

$n+4+n+6=28$

$n+n+4+6=28$

$2n+10=28$

$2n+10-10=28-10$

$\dfrac{2n}{2} = \dfrac{+8}{2}$

$n=9$

3rd no; $n+4$

$9+4$

13

25. Twebaze bought **20** mangoes at **sh. 2000** each, but **y** mangoes got spoilt. He sold the rest at **sh. 3000** each making a profit of **sh. 8,000**. Calculate the value of **y**. ***(5 marks)***

Buying price → sh. 20,000 x 20
→ sh. 40,000

Mangoes sold : 20 - y

Selling price → sh. 40,000
+ sh. 8000
sh. 48,000

value of y

$3000(20-y) = 48{,}000$

$60{,}000 - 3000y = 48{,}000$

$60{,}000 - 48000 = 3000y$

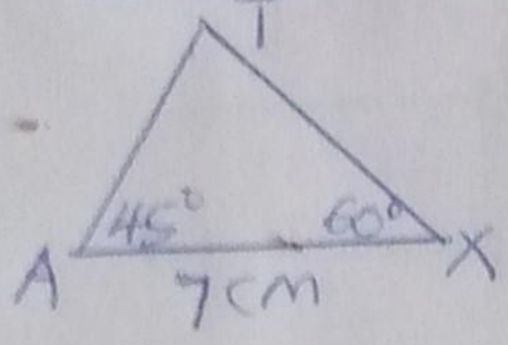
$\frac{12{,}000}{3000} = \frac{3000y}{3000}$

$4 = y$

$y = 4$

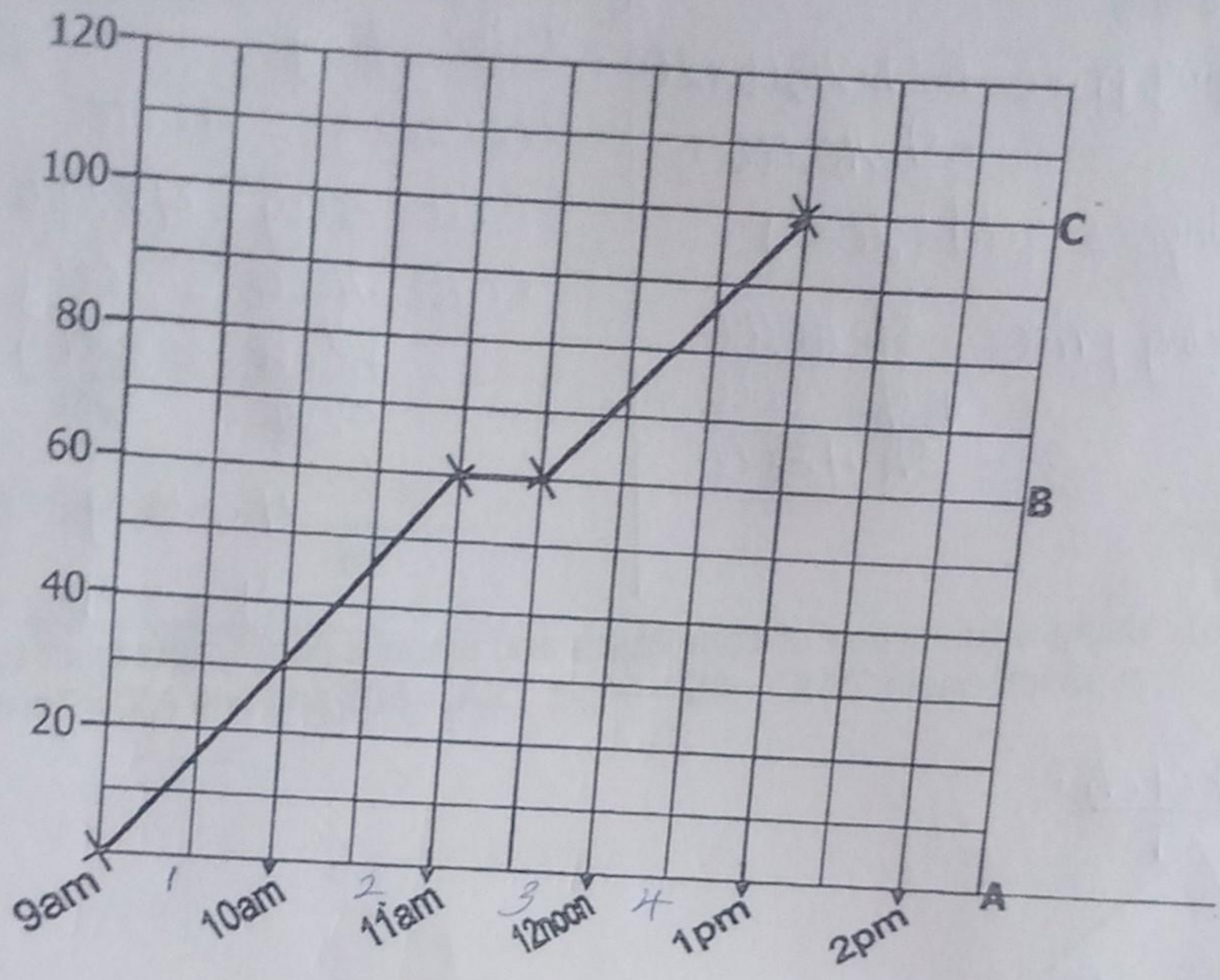
26. (a) Using a ruler, pair of compasses and a sharp pencil, construct triangle **TAX** in which angle **TAX** = **45°**, angle **TXA** = **60°** and line **AX** = **7cm**. ***(4 marks)***

sketch



(b) Measure line **TX**. ***(1 mark)***

27. The graph below shows a cyclist's movement from town **A** to town **C** through town **B**.



(a) How far is town **B** from town **C**? *(2 marks)*

~~100~~ 100 km
− 60 km
40 km

(b) Calculate the cyclist's average speed for the entire journey. *(3 marks)*

A·S = $\frac{\text{TDC}}{\text{TTT}}$

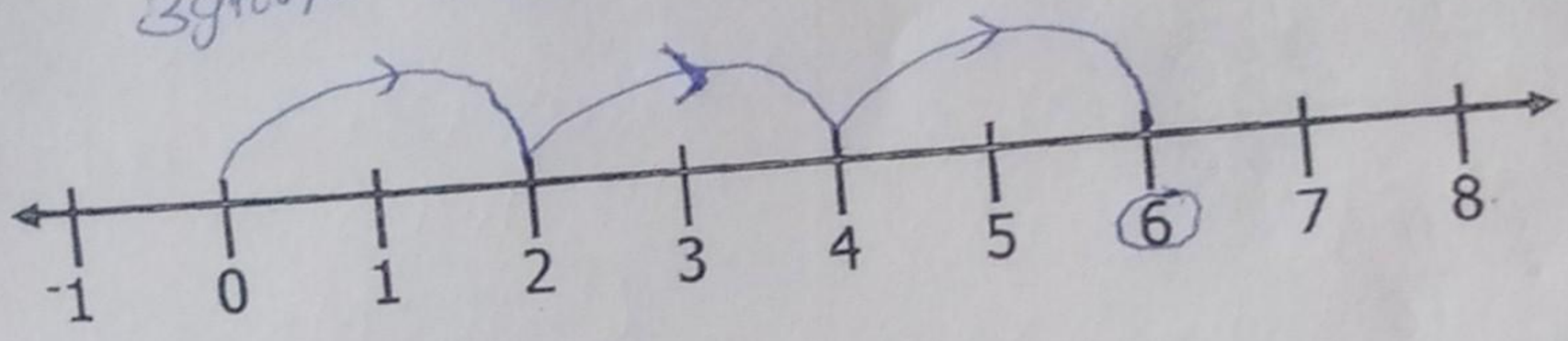
A·S = $\frac{60\text{km} + 40\text{km}}{4\text{h}}$

A·S = $\frac{\overset{25}{\cancel{100}}\text{km}}{\cancel{4}\text{h}}$

A·S = 25 km/h

28. (a) Represent 3 x 2 on the number line below. **(2 marks)**

3 groups of 2s



(b) A building was constructed in **25 BC** and it collapsed in **45 AD**. How old was the building at the time of its collapse? **(2 marks)**

25BC → -25

45AD → +45

AD - BC

+45 - (-25)

+45 + 25 = 70 years

(1 mark)

(c) Workout: $^{-}2 - ^{-}3$

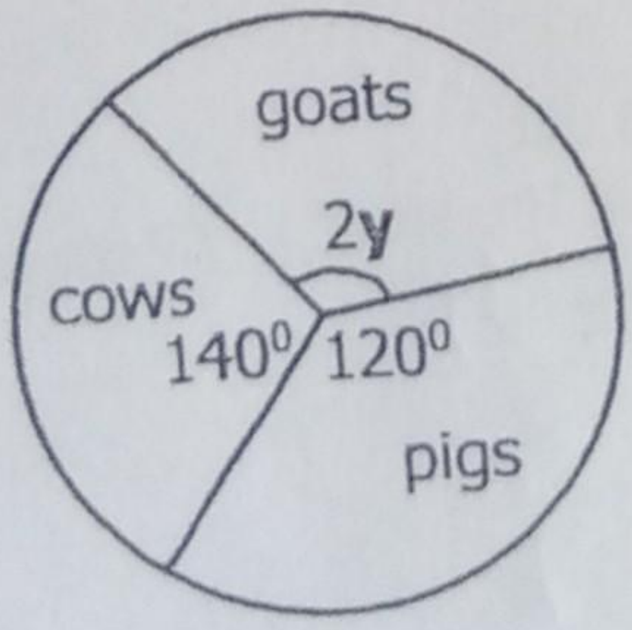
-2 - (-3)

-2 + 3

+1

29. Use the pie-chart below to answer the questions that follow.

(a) Find the degrees that represent goats. **(3 ma**



2y = 360° - (140° + 120°)

2y = 360° - 260°

2y = 100°

100° rep goats.

(b) If goats and pigs are **55**, find the total number of animals. ***(3 marks)***

$55 \div \left(\frac{100+120}{360}\right)$

$55 \div \frac{220}{360}$

$\frac{55}{1} \div \frac{11}{18}$

$\frac{55}{1} \times \frac{18}{11} = 90$ animals.

30. Mr. Igoma planted trees round his circular plot of land of diameter **56 metres** at an interval of **4 metres** apart.

(a) How many trees did he plant altogether? (Use $\pi = \frac{22}{7}$) ***(3 marks)***

$C = \pi D$

$C = \frac{22}{7} \times 56m$

$C = 176m$

No of trees $\rightarrow \frac{C}{I}$

$\frac{176m}{4m}$

44 trees

(b) If each tree seedling was bought at **sh.1,500**, how much did he spend on all the seedlings? ***(3 marks)***

Total amount spent $\rightarrow$ Sh 1,500 x 44

$\rightarrow$ Sh. 66,000

$44 \times 15 = 220 + 440 = 660$

31. Stella is 45 years old and her son Goodluck is 21 years old.

(a) How many years ago was Stella's age thrice that of the son? ***(3 marks)***

let 'k' rep the years ago

	Stella	Goodluck
Now	45	21
In 'k' yrs ago	45-k	21-k

$3(21-k) = 45-k$

$63-3k = 45-k$

$63-45 = -k+3k$

$18 = 2k$

$\frac{18}{2} = \frac{2k}{2}$

$9 = k$

$k = 9$ years ago.

(b) What was their total age then? ***(2 marks)***

Stella → (45 - 9) years

36 years

Goodluck → (21 - 9) years

12 years

Total age then → (36 + 12) years

48 years.

32. By selling a radio at sh. 144,000, a trader made a profit of 20%.

(a) At how much did he buy the radio? ***(3 marks)***

Buying price = sh. 144,000 ÷ (100% + 20%)

$Sh.144,000 \div \frac{120}{100}$

$Sh.\overset{12}{\cancel{144}},000 \times \frac{10}{\cancel{12}}$

B.P = Sh. 120,000

(b) If the trader was to have a percentage profit of 30%, at how much would he have sold the radio? ***(2 marks)***

Selling price = (100% + 30%) × B.P

$S.P = \frac{130}{100} \times Sh.120,000$

$S.P = Sh.156,000$

15
× 12
26
+13
156