SIR APOLLO KAGGWA SCHOOLS- SINCE 1996

HUB TEST 2 TERM III 2024

P.7 MATHEMATICS

Tr Alex

NAME:_____ Stream_____

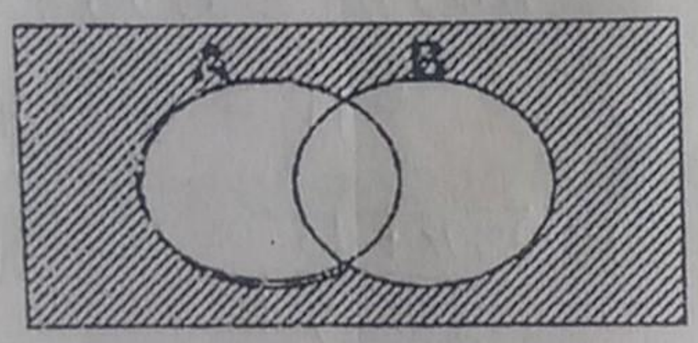
SCHOOL:_____

SECTION A (40 MARKS)

1. Work out: **43 x 2**

$$\begin{array}{r} 43 \\ \times\ 2 \\ \hline 86 \end{array}$$

2. Describe the unshaded part in the Venn diagram.



~~(A ∪ B)'~~

$A \cup B$

3. Write **215** in Roman Numerals.

200 + 10 + 5
CC X V

CCXV

4. Find the next number in the sequence.

1 , 2 , 6 , 15 , 31 , 56

+1 +4 +9 +16 +25 (Sq. nos)

31
+25
56

5. Simplify: **$^{-}8 - {}^{-}10$**

$-8-(-10)$

$-8+10$

$+2$

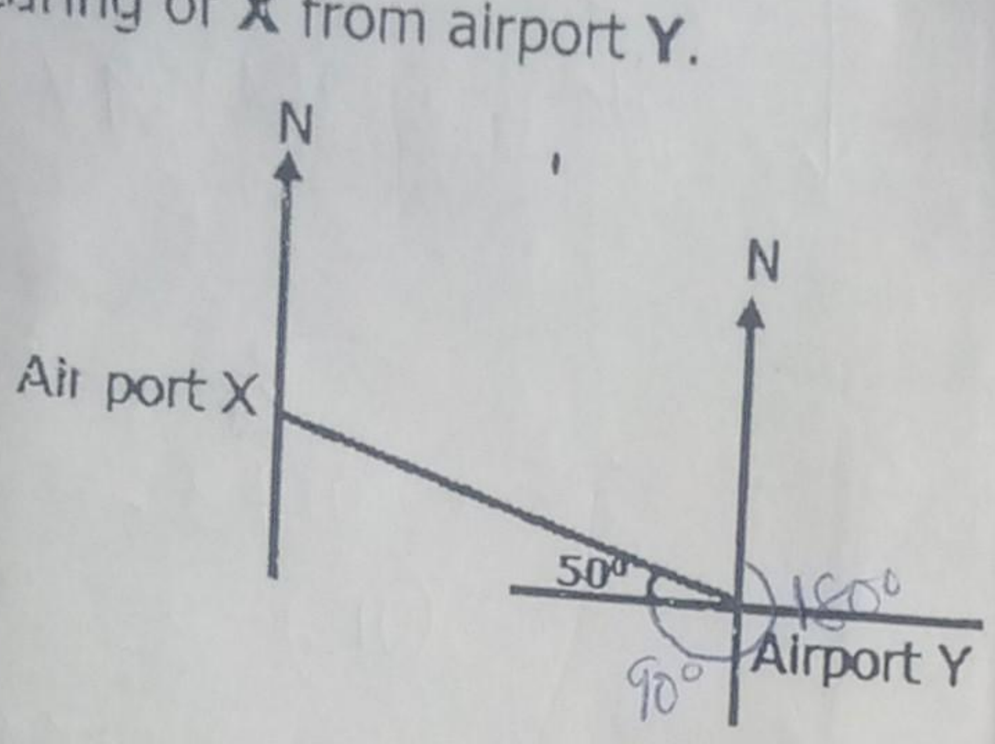
6. There are **40** pupils in a class. If **25** pupils are present today, what percentage of the whole class is absent?

Absentees : 40
-25
15

$\left(\frac{15}{40} \times \frac{5}{100}\right)\%$

$\frac{37\frac{1}{2}}{2}\% = 37\frac{1}{2}\%$

7. The diagram below shows the positions of two airports **X** and **Y**. Work out t bearing of **X** from airport **Y**.



① 180°
90°
+ 50°
220°

8. 5 cakes cost **sh. 2500**, what is the cost of **12** similar cakes?

5 cakes cost Sh 2,500
1 cake costs Sh. 2,500 / 5
1 cake costs Sh. 500

12 cake cost Sh 500 X 12
Sh. 6,000

9. A baby slept at **7:15am** for **2 ½ hrs**. At what time did the baby wake up?

E.T = S.T + D

H	M
7	15
+ 2	30
9	45am

9:45am

10. The bag weighs **2500 grams**. Express this mass in **kg**.

1000g = 1kg
2500g = 2500/1000 kg
= 2.5kg

11. Solve: **7w − 7 = 0**

7w − 7 = 0
7w − 7 + 7 = 0 + 7
7w = 7

7w/7 = 7/7
w = 1

12. Study the table below and find the median.

Marks	50	80	75	98
No. of pupils	1	2	3	1

50, 75, 75, 75, 80, 80, 98, 7

median = 75

13. Write **67,000** in standard form.

67,000 ÷ 10 = 6700
6700 ÷ 10 = 670
670 ÷ 10 = 67

67 ÷ 10 = 6·7

6.7×10^4

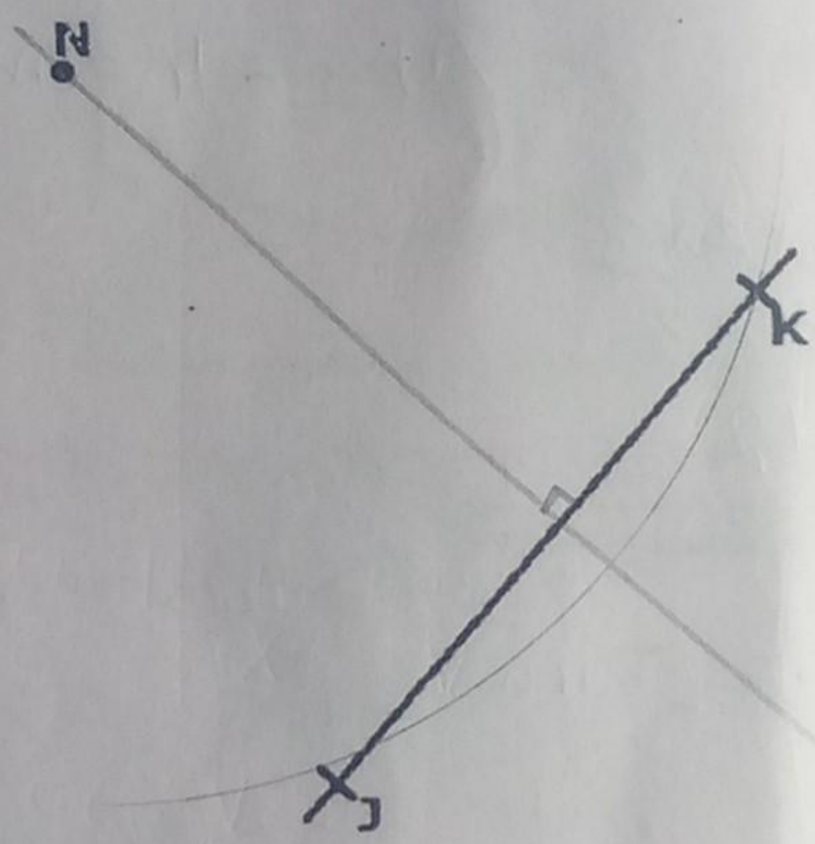
14. Mukisa deposited **shs. 60,000** in bank which gives a simple interest of **30%** per month. Find the simple interest after **10** months.

I = PXRXT

I = Sh. 60,000 × $\frac{30}{100}$ × 10

I = Sh. 180,000

15. Using a ruler a pencil and a pair of compasses only, construct a perpendicular line from **N** to line segment **JK**.



16. Find the range of **80, 42, 63** and **90.**

R = H - L

80
-42
48

17. Pius covered a distance of **60km** in **45** minutes. Calculate his speed in **km/hr.**

S = D ÷ T

45min = $\frac{45}{60}$ h

S = (60 ÷ $\frac{45}{60}$) km/h

S = (60 × $\frac{4}{3}$) km/h

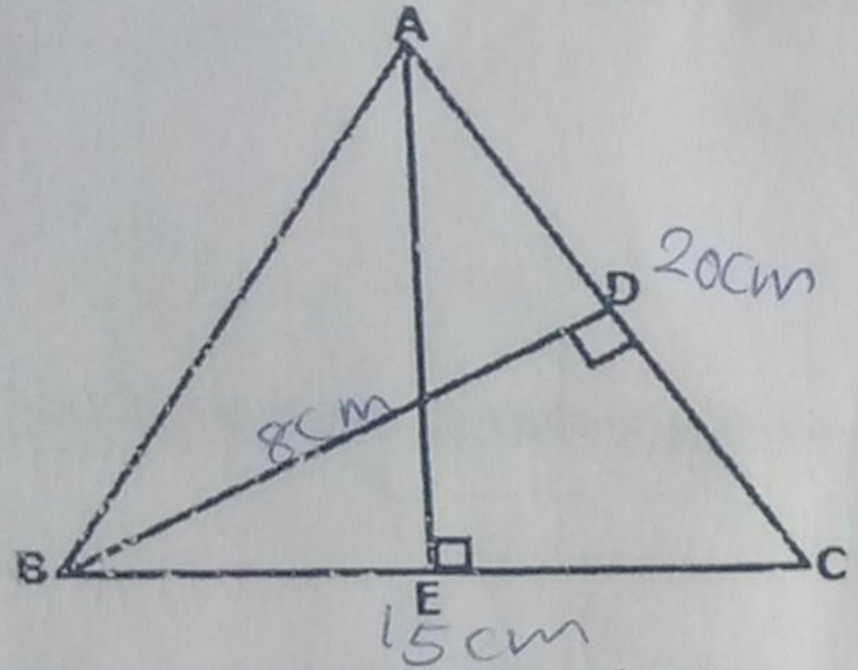
S = 80km/h

18. Round off 4604 to the nearest thousands.

4604 → R. p. V

4000
+1000
5,000

19. Find the length of line **AE** in the figure below if **AC = 20cm, BC = 15cm** and **BD = 8cm**



Area = Area

$\frac{1}{2} \times 15 \times AE = \frac{1}{2} \times 20 \times 8$

$\frac{1}{2} \times \frac{15AE}{2} = 80 \times 2$

$\frac{15AE}{15} = \frac{80 \times 2}{15}$

$AE = \frac{32}{3}$

$AE = 10\frac{2}{3}cm$.

20. Find the **GCF** of **24** and **36.**

2	24	36
2	12	18
3	6	9
	2	3

GCF = (2 x 2) x 3

4 x 3

GCF = 12

SECTION B

21a) Work out: $1\ 1\ 0\ 1_{two}$ + $1\ 1_{two}$

2 ÷ 2 = 1 r 0

10000_{two} (2marks)

b) Find the value of **P** in

$2p1_{five} = 123_{seven}$

$(2 \times 5^2) + (P \times 5^1) + (1 \times 5^0) = (1 \times 7^2) + (2 \times 7^1) + (3 \times 7^0)$

$2 \times 5 \times 5 + P \times 5 + 1 \times 1 = 1 \times 7 \times 7 + 2 \times 7 + 3 \times 1$

$50 + 5P + 1 = 49 + 14 + 3$

$51 + 5P = 66$ (3marks)

$51 - 51 + 5P = 66 - 51$

$\frac{5P}{5} = \frac{15}{5}$

$P = 3$.

22a) Find the number which has been expanded to give;

$(9 \times 10^4) + (3 \times 10^2) + (2 \times 10^0)$

$(9 \times 10 \times 10 \times 10 \times 10) + (3 \times 10 \times 10) + (2 \times 1)$

$90000 + 300 + 2$

90,000
+ 300
+ 2
90,302

b) Use distributive property to work out: **99 ÷ 4 – 19 ÷ 4** (2marks)

$(99-19) \div 4$

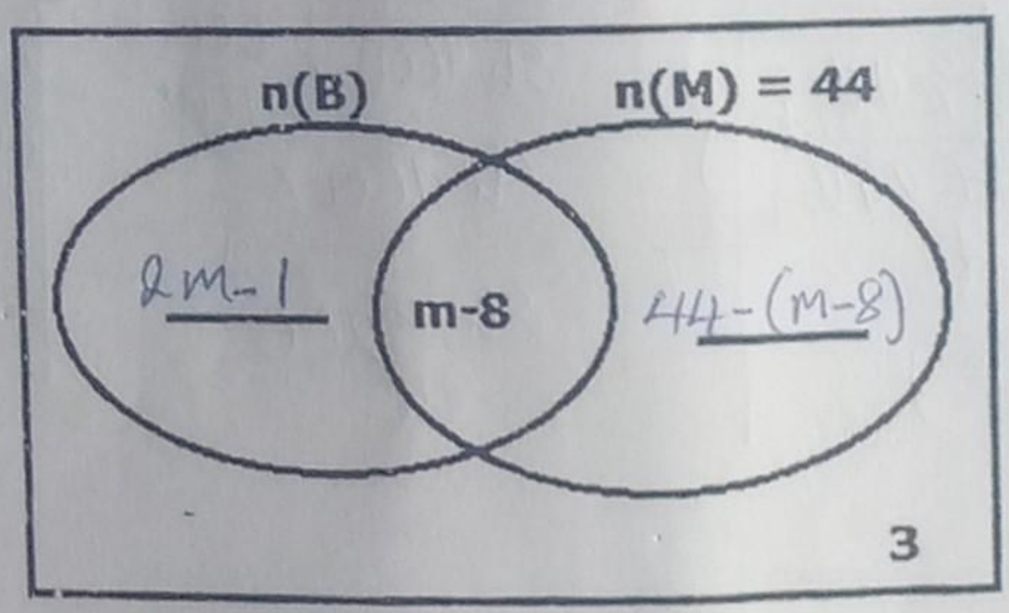
$80 \div 4$

20

$\frac{20}{4\overline{)80}}$

23. In a farmers' club **(2m – 1)** grow beans (B) but not maize (M), **44** grow maize, **(m-8)** grow both beans and maize while **3** grow other crops.

a) Use the information above to complete the Venn diagram below. (2marks)



b) If **70** farmers grow only one type of crop, find the value of **m**. (2marks)

$2m-1+44-(m-8)=70$

$2m-1+44-m+8=70$

$2m-m+44+8-1=70$

$m+52-1=70$

$m+51=70$

$m+51-51=70-51$

$m = 19$

c) Find the probability of picking a farmer at random who grows maize. (2marks)

$n(\mathcal{E}) = 70+m-8+m3$

$70+(19-8)+3$

$70+11+3$

84

$n(T\cdot C)=84$

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

$P = \frac{44}{84}$

26. The time table below shows the flights to and from different airports. Study it carefully and use it to answer the questions that follow.

Flight number	From	To	Departure time	Arrival time
QU 330	Entebbe	Nairobi	7:15am	8:00am
QU 310	Adis Ababa	Entebbe	8:30am	11:00am
ET 965	Arusha	Kigali	11:45am	1:45pm
QA 592	Entebbe	Dubai	4:30pm	9:15pm

a) What is the departure time of plane from Entebbe to Nairobi in 24 hour clock? (1mark)

7:15am
+ 00h
0715 hours

b) How long is the flight from Arusha to Kigali? (2marks)

H M
12 60
- 11 45
00 15

H M
00 15
+ 1 45
2 00

60÷60 = 1:0

Time = 2hours.

c) An aeroplane from Entebbe to Dubai flies at **1360km/h**. How far is Dubai from Entebbe? (2marks)

Time = H M
8 60
9 15
- 4 30
4 45

$T = 4\frac{45}{60}h$

$T = 4\frac{3}{4}h$.

$D = S \times T$

$\frac{1360km}{1h} \times \frac{19}{4_1}h$

1360km

6460km

27. Muwembe spends **40%** of his salary on food. **75%** of the remainder on rent and saves the rest amounting to **sh. 180,000.**

Find how much he earns monthly. (5marks)

Food → $\frac{40}{100} = \frac{2}{5}$

Remainder: $1 - \frac{2}{5}$

$\frac{5-2}{5}$

$\frac{3}{5}$

Rent

$\frac{75}{100} \times \frac{3}{5}$

$\frac{9}{20}$

T.T fraction

$\frac{2}{5} + \frac{9}{20} = \frac{8+9}{20}$

$\frac{17}{20}$

Save: $1 - \frac{17}{20}$

$\frac{20-17}{20} = \frac{3}{20}$

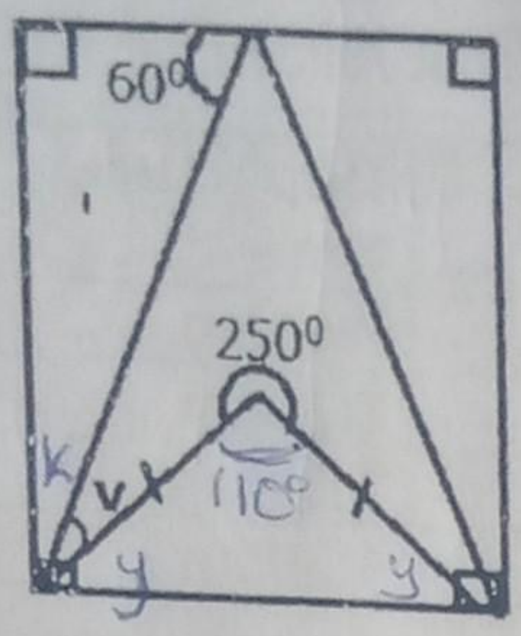
Total salar

Sh. 180,000 ÷ $\frac{3}{20}$

Sh. 180,000 × $\frac{20}{3_1}$

Sh. 1,200,000

28. Study the diagram below and use it to answer the question that follows.



$360° - 250° = 110°$

a) Find the value of **v**.

$y + y + 110° = 180°$

$2y + 110° = 180°$

$2y + 110° - 110° = 180° - 110°$

$\frac{2y}{2} = \frac{70}{2}$

$y = 35°$

$k + 90° + 60° = 180°$

$k + 150° = 180°$

$k + 150° - 150° = 180° - 150°$

$k = 30°$

$k + v + y = 90°$

$v + 30° + 35° = 90°$

$v + 65° = 90°$

$v + 65° - 65° = 90° - 65°$

$v = 25°$

(3marks)

b) What angle $\frac{1}{5}$ of it supplement?

Ratio : 1:5

Total ratio : 1+5 = 6

Angle : $\frac{1}{6} \times 180°$

$30°$

(2marks)

29. Given the equation of the line **y = 3x – 2.**

Complete the table below.

x	0	2	3	5
y	-2	4	7	13

(4marks)

$3x - 2 = y$

$3x - 2 = -2$

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

$\frac{3x}{3} = \frac{0}{3}$

$x = 0$

$y = 3x - 2$

$y = 3 \times 2 - 2$

$y = 6 - 2$

$y = 4$

$3x - 2 = y$

$3x - 2 = 7$

$3x - 2 + 2 = 7 + 2$

$\frac{3x}{3} = \frac{9}{3}$

$x = 3$

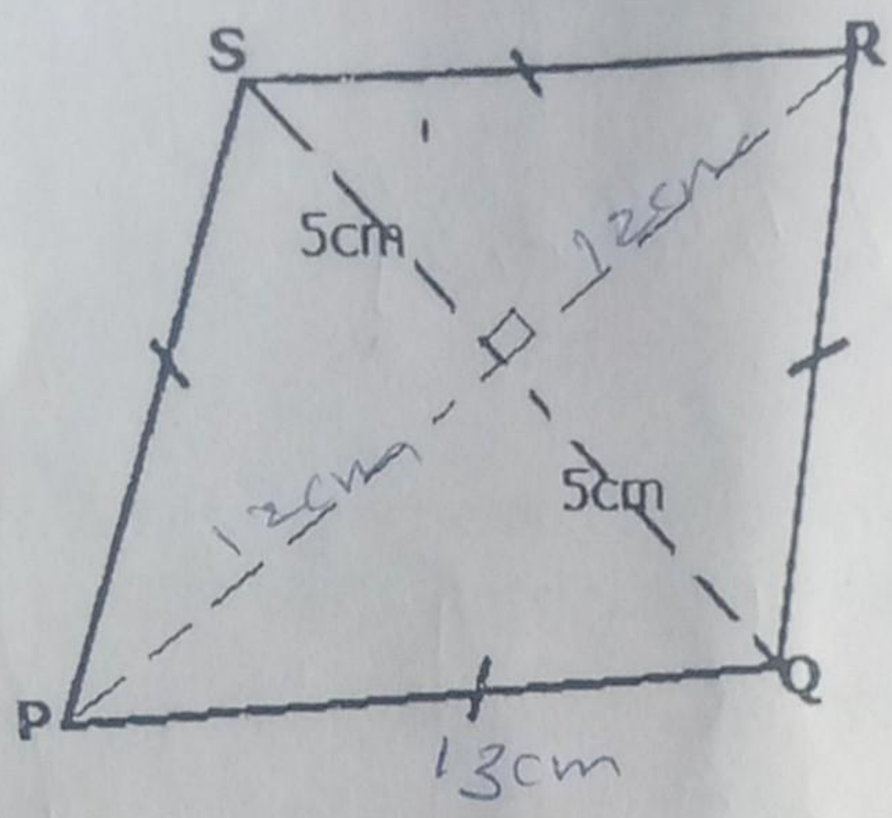
$y = 3x - 2$

$y = 3 \times 5 - 2$

$y = 15 - 2$

$y = 13$

30. The perimeter of the rhombus below is **52cm.**



a) Find the length of diagonal **PR.** (4marks)

$AS = p$

$\frac{1}{4}AS = \frac{13}{4}cm$

$S = 13cm.$

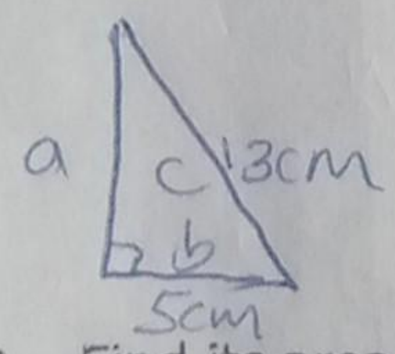
$a^2 + 5^2 = 13^2$

$a^2 + 25 = 169$

$a^2 + 25 - 25 = 169 - 25$

$\sqrt{a^2} = \sqrt{144}$

$a = 12cm$



$PR = 12cm + 12cm$

$PR = 24cm.$

b) Find its area. (2marks)

$A = \frac{1}{2} \times d_1 \times d_2$

$A = \frac{1}{2} \times 10cm \times 24cm$

$A = 120cm^2$

31. Solve:

a) $\frac{1}{3}(6y - 12) + \frac{3}{4}(8y + 20) = 27$ (3marks)

$\frac{1}{3} \times 6y - \frac{1}{3} \times 12 + \frac{3}{4} \times 8y + \frac{3}{4} \times 20 = 27$

$2y - 4 + 6y + 15 = 27$

$2y + 6y + 15 - 4 = 27$

$8y + 11 = 27$

$8y + 11 - 11 = 27 - 11$

$\frac{8}{8}y = \frac{16}{8}$

$y = 2.$

b) Find the solution set for

$-2 \leq 2y < 8$

$\frac{-2}{2} \leq \frac{2y}{2} < \frac{8}{2}$

$-1 \leq y < 4$

$y = \{-1, 0, 1, 2, 3\}$

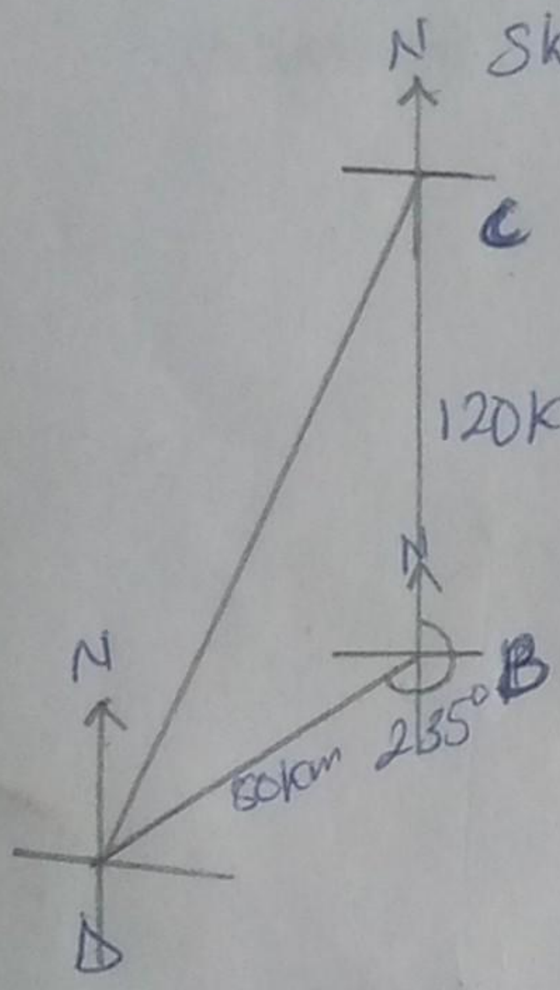
(2marks)

32. Town **B** is south of Town **C**. The distance between Towns **B** and **C** is **120km**. Town **D** is **80km** from Town **B** on a bearing of **235°**

a) Using a scale of **1cm : 20km**, draw an accurate diagram to show the position of the three towns.

(4marks)

Sketch.



$235° - 180° = 55°$

B to C

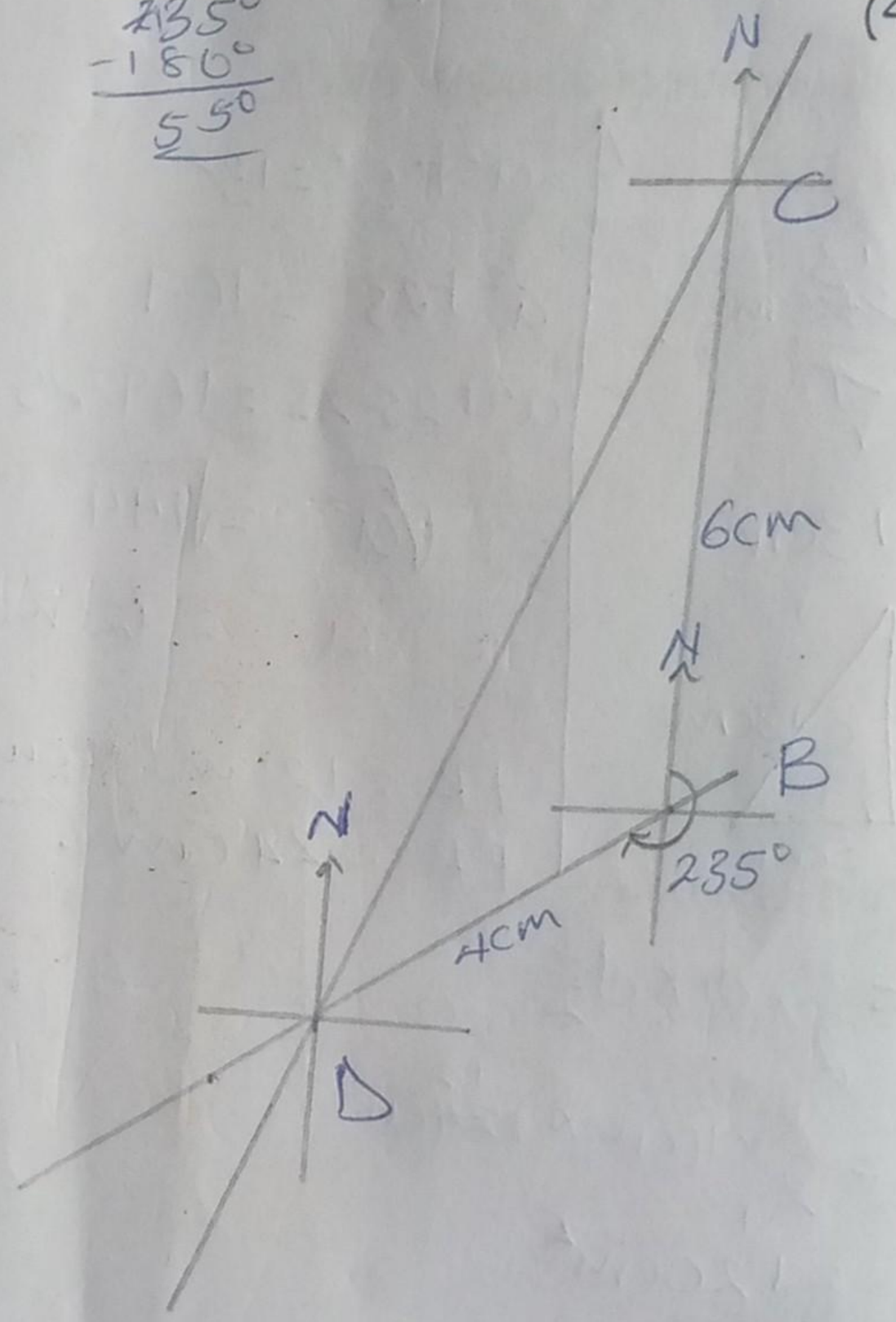
$\frac{120}{20}$ cm

6cm

B to D

$\frac{80}{20}$ cm

4cm



b) Find the bearing of Town **D** from Town **C**.

(1mark)

$180° + 20° = 200°$

THE END