



The HIGHWAY EXAMINATIONS

PRIMARY SEVEN QUALITY ASSESSMENT

2025

MATHEMATICS

OFFICIAL MARKING GUIDE

Read the following instructions carefully:

1. DO not forget to write your **school** and **district name** on this paper.
2. This paper has **two** sections **A** and **B**.
Section **A** has 20 short questions (40 marks)
Section **B** has 12 questions (60 marks)
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 will **not** be marked except drawings and diagram.
5. **No calculators** are allowed in the examination room.
6. Unnecessary **changes** in your work and handwriting that cannot be easily read may lead to **loss of marks**.
7. Do not fill anything in the table indicated **"FOR EXAMINERS' USE ONLY"** and the boxes inside the question paper.

FOR EXAMINERS' USE ONLY		
Qn. No.	MARKS	EXR'S
		No.
1 - 5		
6 - 10		
11 - 15		
16 - 20		
21 - 22		
23 - 24		
25 - 26		
27 - 28		
29 - 30		
31 - 32		
TOTAL		

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SECTION A

*Answer **all** questions in this section.*

Questions 1 to 20 carry two marks each.

1. Work out: $\frac{1}{3} \times 12$

$$\begin{aligned} \frac{1}{3} \times 12 &= \frac{1 \times 12}{3} \\ &= \underline{\underline{12^4}} \\ &\quad 3_1 \\ &= \underline{\underline{4}} \end{aligned}$$

OR

$$\begin{aligned} \frac{1}{3} \times 12 &= \underline{1} \times \underline{\underline{12^4}} \\ &\quad 3_1 \\ &= \underline{\underline{4}} \end{aligned}$$

2. Convert 6.64 kilograms to grams.

6.64kg to gms

$$1\text{kg} = 1000\text{gms}$$

$$\begin{aligned} 6.64\text{kg} &= 6.64 \times 1000\text{gms} \\ &= \underline{\underline{664}} \times \underline{\underline{1000}}\text{grams} \\ &\quad 100 \\ &\quad 664 \times 10 \\ &= \underline{\underline{6640\text{grams}}} \end{aligned}$$

3. Round off 76475 to the nearest thousands.

Rpv				
T.TH	TH	H	T	O
7	6	4	7	5

7 6 000

$$\begin{aligned} &+ 0 000 \\ &\underline{\underline{76000}} \end{aligned}$$

$$\therefore 76476 \approx 76000$$

Reject

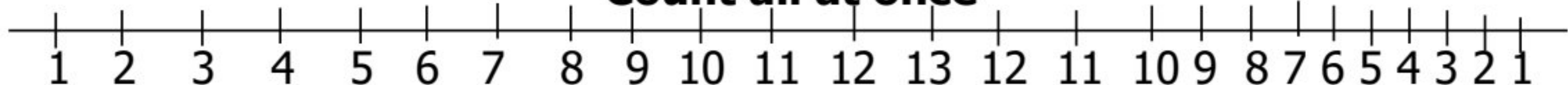
$$\begin{aligned} &\underline{\underline{76475}} \\ &+ 0 \\ &\underline{\underline{76000}} \end{aligned}$$

MO

4. On a school assembly, Gertrude is in the 13th position from either side of the P.5 girls' line. How many girls were in P.5?

$$\begin{aligned} \text{No. of girls} &= (2 \times p - 1) \\ &= (2 \times 13) - 1 \\ &= 26 - 1 \\ &= \underline{\underline{25 \text{ girls}}} \end{aligned}$$

Count all at once



= 25 girls

5. Work out: $312_{\text{five}} - 14_{\text{five}}$.

$$\begin{array}{r} \cancel{3}^2 \quad \cancel{1}^0 \quad 2^5_{\text{five}} \\ - \quad 1 \quad 4_{\text{five}} \\ \hline 2 \quad 4 \quad 3_{\text{five}} \end{array}$$

$$\begin{aligned} 5 + 2 &= 7 - 4 \\ &= 3 \\ 5 + 0 &= 5 \\ 5 - 1 &= 4 \end{aligned}$$

6. At the forex bureau, the cost of each Tanzania shilling (TZs) is Ugsh.30.

How many Tanzania shillings can be obtained from Ugsh.3600?

$$30\text{ugsh} = 1 \text{ Tzsh}$$

$$\begin{aligned} \text{Ug.sh}36000 &= \frac{3600}{30} \\ &= \underline{\underline{\text{TZsh.120}}} \end{aligned}$$

OR

$$\begin{aligned} \text{Ugsh.30 cost 1 Tzsh} \\ \text{Ugsh.3600 cost ugsh3600} \\ \text{ugsh30} \end{aligned}$$

$$\begin{aligned} &= \frac{360}{3} \\ &= \underline{\underline{120\text{TZsh}}} \end{aligned}$$

7. At St. Kizito Primary School, P.3 and P.4 have 60 and 80 pupils respectively.

Find the highest number of pupils the class teachers can put to sit on each desk.

GCF / HCF / OF 60 and 80.

$$\begin{array}{c|c|c} 2 & 60 & 80 \\ \hline 2 & 30 & 40 \\ \hline & 15 & 20 \\ & = 2 \times 2 \\ & = \underline{\underline{4 \text{ pupils}}} \end{array}$$

you can accept prime factorization as well.

8. The sum of two numbers is 18. If the first number is twice the second number, find the numbers.

Let the 1st no. be k

$$2^{\text{nd}} \text{ no.} = 2k$$

Sum of the (2) numbers = 18

$$k + 2k = 18$$

$$3k = 18$$

$$\cancel{3} \quad \cancel{3}$$

$$k = 6$$

$$2^{\text{nd}} \text{ no.} = 2 \times 6$$

$$= 12$$

The numbers are 6 and 12.

OR

1 st no.	2 nd no.	sum
k	2k	18

We follow the same steps.

9. If $b = -6$, $c = 10$. Find the value of $b^3 + c$.

$$\begin{aligned} b^3 + c &= b \times b \times b + c \\ &= (-6 \times -6 \times -6) + 10 \\ &= -216 + 10 \\ &= -206 \end{aligned}$$

10. Write the scientific notation form of 0.0045.

$$0.0045 \times 10^n$$

$$0.0045 \times 10 = 00.045 \dots$$

$$00.045 \times 10 = 000.45 \dots$$

$$000.45 \times 10 = 4.5 \dots$$

$$\therefore 4.5 \times 10^{-3}$$

Reject this please

$$0.0045$$

11. The temperature on top of Mt. Elgon rose from -14°C to 9°C . By how many degrees did it rise?

$$-14^\circ\text{C} + 9^\circ\text{C}$$

$$= -5^\circ\text{C}$$

12. A canteen woman sells 3 pancakes at sh.1200. How many pancakes does she sell at sh.1800?

$$3 \text{ pancakes cost sh.1200}$$

$$1 \text{ pancake cost } \frac{\text{sh.1200}}{3}$$

$$= \frac{\text{sh.1200}}{3}$$

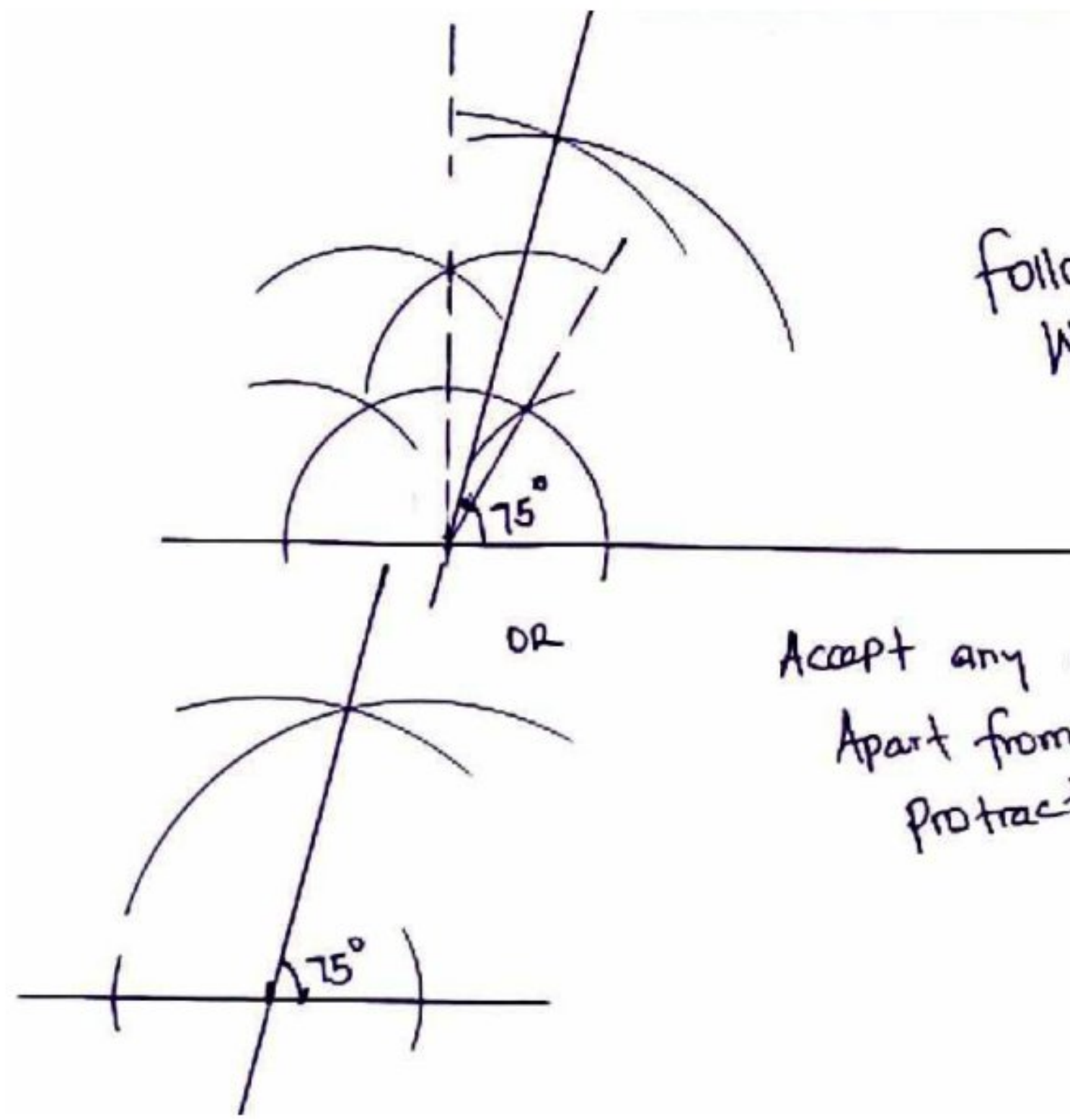
$$18000 = \frac{18000}{400} \text{ pancakes}$$

$$= 45 \text{ pancakes}$$

13. Using a ruler, a pencil and a pair of compasses only, construct the supplementary angle of 105° .

Let the angle be k

$$K = (180^\circ - 105^\circ) \\ = 75^\circ$$



through.
follow the learner
Work

Accept any other alternative
Apart from using the
protractor direct

14. Write the value of 7 in the number 45.437.

T	O	.	t	h	th
4	5	.	4	3	(7)

Value of 7

$$= D \times P_v$$

$$= 7 \times \text{thousandths } \left(\frac{1}{1000}\right)$$

$$= 7 \times 0.001$$

$$= \underline{\underline{0.007}}$$

15. Given that $M = \{p, e, n, t\}$. Find the number of proper subsets of set M .

$$\text{No. of proper subsets} = (2^n) - 1$$

$$(2^4) - 1$$

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

$$= 16 - 1$$

$$= \underline{\underline{15 \text{ proper subsets}}}$$

16. Write the next two equivalent fractions for $\frac{3}{7}$.

$$\frac{3}{7} \times \frac{2}{2} = \frac{6}{14}$$

$\therefore$ The fractions are $\frac{6}{14}$ and $\frac{9}{21}$

$$\frac{3}{7} \times \frac{3}{3} = \frac{9}{21}$$

Accept another approach like repeated addition of the numerators and denominators.

17. It takes Betty 35 minutes to clean the classroom. If she starts at 2:25p.m, at what time will she finish cleaning the room?

Ending time = (starting time + Duration)

Hrs	min
2	25
+	35
3	00

$$\begin{aligned} 1\text{hr} &= 60 \text{ minutes} \\ 35 + 25 &= 50 \\ 60 \div 60 &= 1\text{hr rem } 0 \end{aligned}$$

She will finish at 3:00pm OR 3pm

18. Using distributive property, simplify: $(14.8 \times 64) + (14.8 \times 36)$

$$\text{C.F} = 14.8$$

$$= 14.8 \times (64 + 36)$$

$$= 14.8 \times 100$$

$$100 \times \frac{148}{10}$$

$$= \frac{14800}{10}$$

$$= 1480$$

OR

$$(64 + 36) \times 14.8$$

$$100 \times 14.8$$

$$100 \times \frac{148}{10}$$

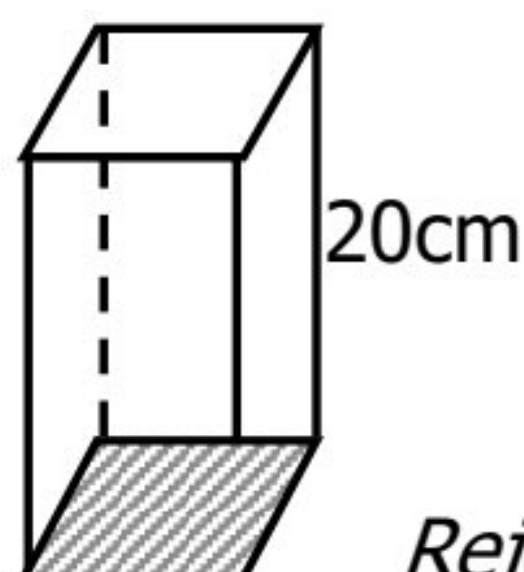
$$\frac{14800}{10}$$

$$= 1480$$

19. Write 7070020 in words.

Seven million, seventy thousand twenty.

20. Calculate the volume of the rectangular tank drawn below whose base area is 30cm^2 .



$$\begin{aligned} \text{Volume} &= (\text{Base area} \times h) \\ &= (L \times W) \times 20 \\ &= 30\text{cm}^2 \times 20\text{cm} \\ &= \underline{\underline{600\text{cm}^3}} \end{aligned}$$

Reject any answer without correct units.

SECTION B

*Answer **all** questions in this section.*

Marks for each question are indicated in the brackets

21. (a) Express 13_{ten} to binary base. (2 marks)

B	13	Rem
2	6	1
2	3	0
2	1	1

$= 1101_{\text{two}}$

OR

$$13 \div 2 = 6 \text{ Rem } 1$$

$$6 \div 2 = 3 \text{ Rem } 0$$

$$3 \div 2 = 1 \text{ Rem } 1$$

$$1 \div 2 = 0 \text{ Rem } 1$$

$13_{\text{ten}} = 1101_{\text{two}}$

$13_{\text{ten}} = 1101_{\text{two}}$

- (b) Given that $3p = 41_{\text{six}}$. Find the value of p . (3 marks)

3	1
p^1	p^0

 $=$

4	1
6^1	6^0

$$3xp^1 + 1xp^0 = 4 \times 6^1 + 1 \times 6^0$$

$$3 \times p + 1 \times 1 = 4 \times 6 + 1 \times 1$$

$$3p + 1 = 24 + 1$$

$$3p + 1 = 25$$

$$3p + 1 - 1 = 25 - 1$$

$$3p = 24$$

$$p = 8$$

$$P = 8$$

$\therefore P$ is base eight.

22. The table below shows the buying and selling rates of different currencies in Bank of Uganda.

Currency	Buying rate (Ug.sh)	Selling rate (Ug.sh)
1 Us dollars (\$)	3500	3600
1 K.sh	29	30
1 R.F	35	4

- (a) A tourist entered the bank with 40,000 Rwanda francs and 15,000 Kenya shillings. How much in Uganda shillings would he receive from the bank? (3 marks)

Rwanda to Uganda	Kenya to Uganda	Total money
$1\text{R.F} = \text{ug.}3.5$ $40,000 = \text{Ugsh}3.5 \times 40,000$ $\frac{35}{10} \times 40,000$ $\text{Ugsh.}140,000$	$1\text{Ksh} = \text{Ugsh.}29$ $15000 = \text{Ugsh}29 \times 15000$ $= \text{Ugsh.}435,000$	$\text{Ugsh.}140,000$ $+ \text{Ugsh.}435,000$ $\text{Ugsh.}575,000$

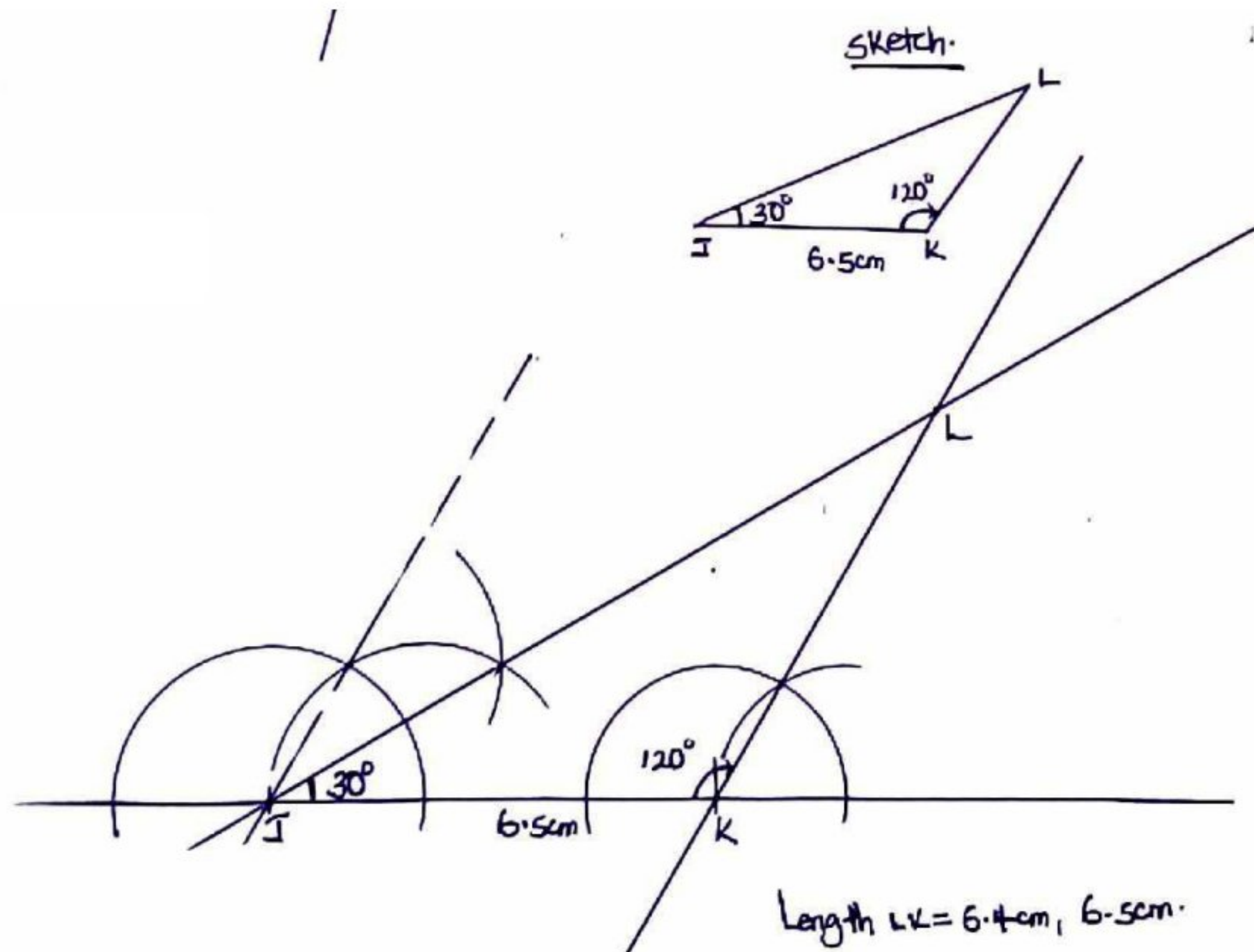
- (b) A missionary has 700 dollars to exchange. How much would he get in Rwanda Francs? (2 marks)

$$\begin{array}{l}
 \times \qquad \div \\
 \text{F} \longrightarrow \text{BL} \longrightarrow \text{F} \\
 = (\cancel{700}^{175} \times 3500) \\
 \quad \cancel{A}_1 \\
 = 175 \times 35000 \\
 = \underline{\underline{\text{R.F } 612,500}}
 \end{array}$$

$$\begin{array}{l}
 \text{OR} \\
 \text{Dollars to Uganda} \\
 1 \text{ dollar} = \text{Ug.}3500 \\
 700 \text{ dollars} = \text{Ugsh } 3500 \times 700 \\
 = \text{Ugsh } 2,450,000 \\
 \text{Ugsh to R.F} \\
 4\text{Ugsh} = 1 \text{ RF} \\
 2450000 = \underline{\underline{\cancel{2450000}^{612500}}} \\
 \quad \cancel{A} \\
 = \underline{\underline{\text{R.F } 612500}}
 \end{array}$$

23. Using a ruler, a pencil and a pair of compasses only,

- (a) Construct a triangle JKL where $JK = 6.5\text{cm}$, angle $LJK = 30^\circ$ and angle $JKL = 120^\circ$. (4 marks)



- (b) Measure the length LK cm (1 mark)

24. You are provided with the number, 7254 on a card. Use it to answer the questions that follow.

- (a) Write the numeral above in expanded form using exponents of ten. (2 marks)

7	2	5	4
$\times 10^3$	$\times 10^2$	$\times 10^1$	$\times 10^0$

$$= 7 \times 10^3 + 2 \times 10^2 + 5 \times 10^1 + 4 \times 10^0$$

- (b) Work out the number that can be added to the above numeral in order to make 7400. (2 marks)

Let the number be (n)

$$n + 7254 = 7400$$

$$n + 7254 - 7254 = 7400 - 7254$$

$$n = 146$$

The number is 146

$$\begin{array}{r} 7400 \\ - 7254 \\ \hline 0146 \end{array}$$

- (c) Find the value of the digit in the hundreds position of the number above. (2 marks)

TH	H	T	O
7	2	5	4

$$\text{Value} = (D \times P \times v)$$

$$= 2 \times 100$$

$$= 200$$

25. (a) Work out: 0.54 x 0.21

(3 marks)

$$0.7 \times 0.9$$

$$(0.54 \times 0.27) \div (0.7 \times 0.9)$$

$$\left(\frac{54}{100} \times \frac{27}{100}\right) \div \left(\frac{7}{10} \times \frac{9}{10}\right)$$

$$\frac{54}{100} \times \frac{27}{100} \times \frac{10}{7} \times \frac{10}{9} = \frac{6 \times 3}{100}$$

$$= \frac{18}{100}$$

$$= 0.18$$

(Follow through the learner's working)

(b) Simplify: $16.6 - 30.6 + 18.4$

(2 marks)

(Rearrange the following Bodmas)

$$= (16.6 + 18.4) - 30.6$$

$$= 16.6 + 18.4 - 30.6$$

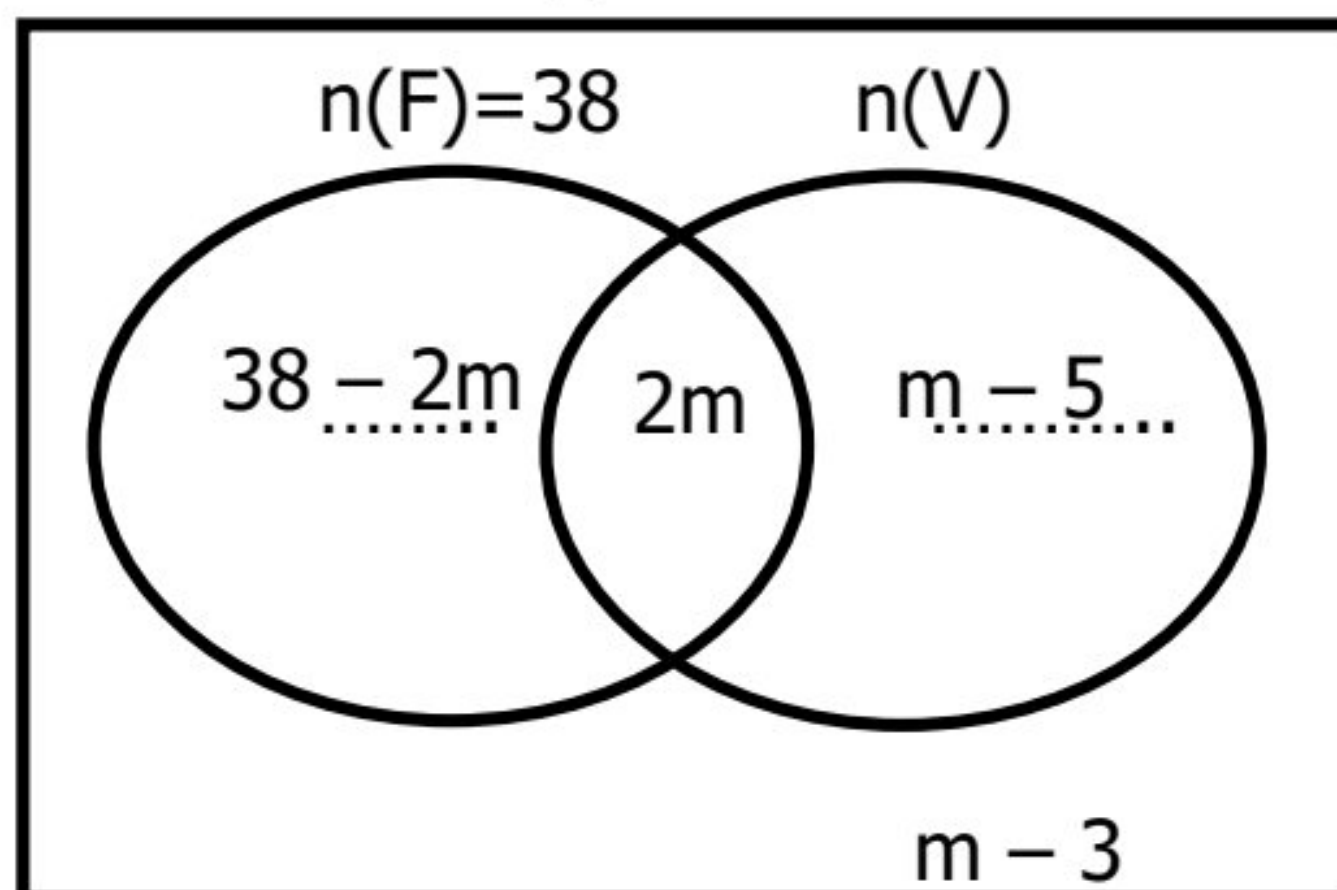
$$\begin{array}{r} 16.6 \\ + 18.4 \\ \hline 35.0 \end{array} \quad \begin{array}{r} 35.0 \\ - 30.6 \\ \hline 4.4 \end{array}$$

26. Primary five class at Greenhill Academy has 64 boys. 38 of them can play football (F) ($m - 5$) can play only volleyball (V), $2m$ can play both games while $m - 3$ do not play any of the two games.

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

$\Sigma =$

(2 marks)



(b) Find the number of boys in the class who are not footballers.

Value of m

(3 marks)

$$38 - 2m + 2m + m - 5 + m - 3 = 68$$

$$38 - 5 - 3 + 2m = 68$$

$$30 + 2m = 68$$

$$30 - 30 + 2m = 68 - 30$$

$$\frac{2m}{2} = \frac{38^{19}}{2}$$

$$\underline{\underline{m = 19}}$$

Number of players who are not footballers.

$n(V)$ only + None

$$(m - 5) + (m - 3)$$

$$(19 - 5) + (19 - 3)$$

$$14 + 16$$

$$\underline{\underline{= 30 \text{ players}}}$$

27. Nalweyiso, Akanji and Ochan shared books in the ratio 3:4:5 respectively.

If Nalweyiso and Akanji share 21 books altogether;

(a) How many books did they share altogether? (3 marks)

Nalweyiso	Akanji	Ochan	Total Ratio
3	4	5	12

Nalweyiso : Akanji : TR

3 : 4 : 7

Total number of books

7 = 21 books

1 = $\frac{21}{7}$

12 = $(\frac{21}{7} \times 12)$ books

= 36 books

OR: Let the no. be (n)

$\frac{7}{12}$ of n = 21

$\frac{7}{12} \times n = 21$

$\frac{7n \times 12}{12} = 21 \times 12$

$\frac{7n}{7} = \frac{21^3 \times 12}{7}$

n = 3 x 12

= 36 books

(b) If sh.1600 was used to buy 4 books, how much money was spent on the books they shared altogether? (2 marks)

4 books cost sh.1600

1 book cost $\frac{\text{sh.1600}^{400}}{4}$

Sh.400

63 books cost (sh.400 x 63)

= sh.25,200

OR

4 books = sh.1600

1 book = $\frac{\text{sh.1600}}{4}$

63 books = $(\frac{\text{sh.1600}^{400}}{4} \times 63)$

= sh.400 x 63

= sh.25,200

28. In a mathematics pre-mock exam, 2 pupils scored 80 marks each, 3 pupils scored 60 marks each, 4 pupils scored a total of 240 marks while 1 pupil scored 90 marks.

(a) Find the marks scored by each of the four pupils in the exam.

Total marks

(2 marks)

No. of pupils

= $\frac{240^{60}}{4}$ marks

~~4~~

= 60 marks

- (b) What was the most frequent mark in the exam? (1 mark)

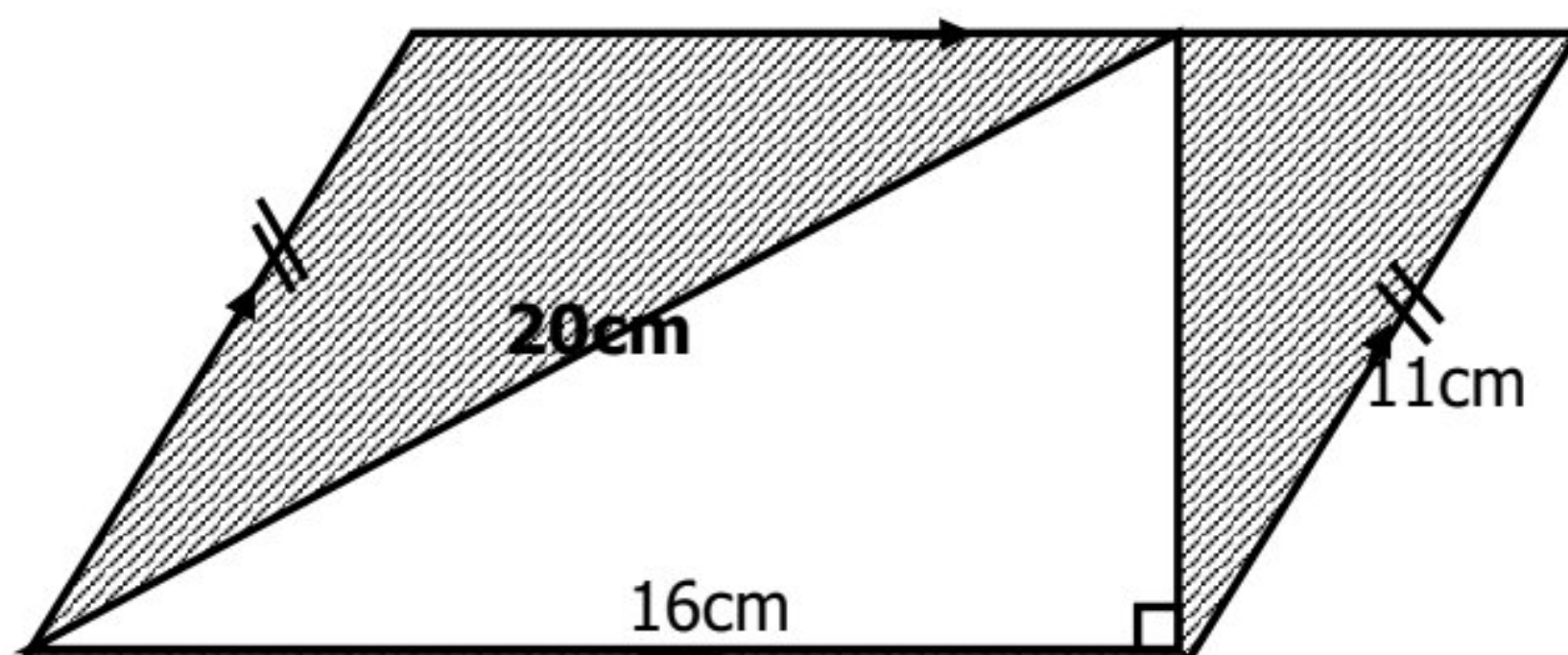
Marks	80	60	90
No. of pupils	2	7	1

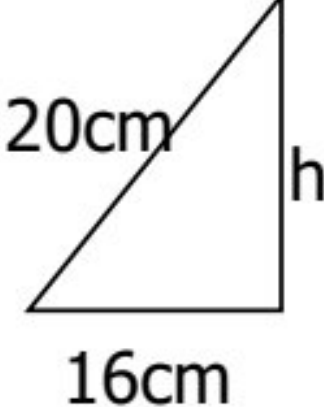
= 60 marks the most frequent mark.

- (c) Work out the mean mark. (3 marks)

$$\begin{aligned}
 \text{Mean} &= \frac{\text{sum of marks}}{\text{No. of pupils}} \\
 &= \frac{(80 \times 2) + (60 \times 7) + (90 \times 1)}{10} \\
 &= \frac{160 + 420 + 90}{10} \\
 &= \frac{670}{10} \\
 &= \underline{\underline{67 \text{ marks}}}
 \end{aligned}$$

29. Work out the area of the shaded part in the figure below. (5 marks)



Outer figure	Inner figure	Shaded part
$A = B \times H$ $16\text{cm} \times 12\text{cm}$ $= 192\text{cm}^2$	$(\frac{1}{2} \times b \times h)$ $A = \frac{1}{2} \times 16\text{cm} \times 12\text{cm}$ $= 8\text{cm} \times 12\text{cm}$ $= 96\text{cm}^2$  $h^2 = 20^2 - 16^2$ $= 20 \times 20 - 16 \times 16$ $h^2 = 400 - 256$ $\sqrt{h^2} = \sqrt{144}$ $h = 12\text{cm}$	$= 192\text{cm}^2 - 96\text{cm}^2$ $= 96\text{cm}^2$

30. (a) Solve: $\frac{5t - 6}{2} = t + 12$

(2 marks)

2

$$2 \times \frac{5t - 6}{2} = (t + 12) \times 2$$

$$5t - 6 = 2t + 24$$

$$5t - 6 + 6 = 2t + 24 + 6$$

$$5t - 2t = 30$$

$$\frac{3t}{3} = \frac{30}{3}$$

$$t = 10$$

$$\underline{\underline{t = 10}}$$

(b) Subtract: $(2m - 3)$ from $(5m + 2)$.

(2 marks)

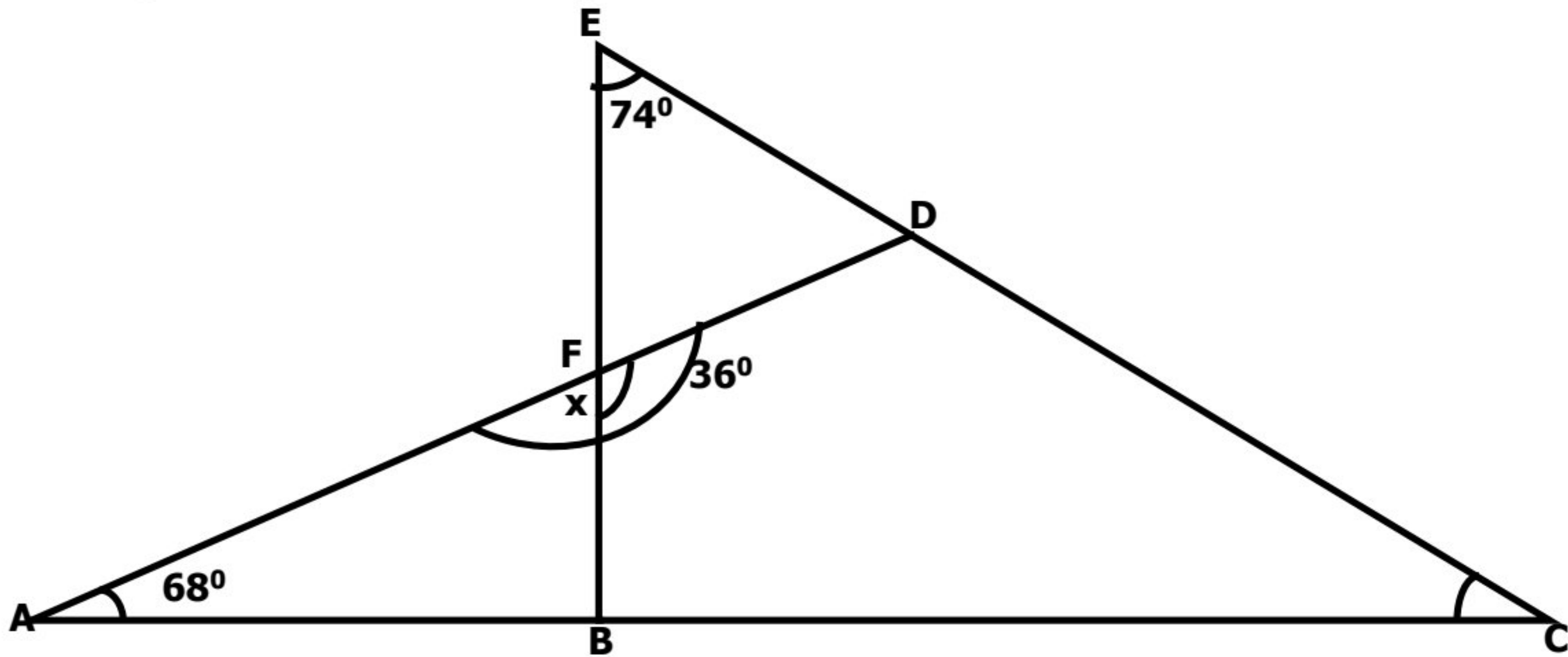
$$(5m + 2) - (2m - 3)$$

$$5m + 2 - 2m + 3$$

$$5m - 2m + 2 + 3$$

$$\underline{\underline{3m + 5}}$$

31. In the diagram below, $\angle DAC = 68^\circ$, $\angle BEC = 74^\circ$ and $\angle BFD = 136^\circ$. Study the diagram and answer the questions that follow.



Find the size of ;

(a) Angle EBC.

(3 marks)

$$x + 136^\circ - 136^\circ = 180^\circ$$

$$x + 136^\circ - 136^\circ = 180^\circ - 136^\circ$$

$$x = 44^\circ$$

$$\angle EBC = (x + 68^\circ)$$

$$= 44^\circ + 68^\circ$$

$$= 112^\circ$$

(b) Angle DCA.

(2 marks)

$$\angle DCA + 112^\circ + 74^\circ = 180^\circ$$

$$\angle DCA + 156^\circ = 180^\circ$$

$$\angle DCA + 156^\circ - 156^\circ = 180^\circ - 156^\circ$$

$$\angle DCA = 24^\circ$$

32. The sum of three consecutive counting numbers is 78. If the middle number is k , find the numbers. (4 marks)

1 st no	2 nd no	3 rd no	Sum
$k - 1$	k	$k + 1$	78

Value of k

$$k + k + k + 1 - 1 = 78$$

$$3k + 0 = 78$$

$$\frac{3k}{3} = \frac{78}{3}$$

$$k = 26$$

1 st no	2 nd no	3 rd
$(k - 1)$ $26 - 1$ $= 25$	$k = 26$ $= 26$	$(k + 1)$ $26 + 1$ $= 27$

The numbers are 25, 26 and 27.

END