



11 Alex

UGANDA NATIONAL EXAMINATIONS BOARD
PRIMARY LEAVING EXAMINATION
2024

MATHEMATICS

Time allowed: 2 hours 30 minutes

Random No.						Personal No.		

Candidate's Name:

Candidate's Signature:

District ID No.

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Read the following instructions carefully:

1. The paper has two sections: A and B.
2. Section A has 20 questions (40 marks)
3. Section B has 12 questions (60 marks)
4. Answer all questions. All answers to both Sections A and B must be written in the spaces provided.
5. All answers must be written using a blue or black ball point pen or ink. Diagrams should be drawn in pencil.
6. Unnecessary changes in your 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 table indicated:
"For Examiner's use only" and 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		

SECTION A: 40 MARKS

Answer all questions in this section

Question 1 to 20 carry two marks each.

1. Add: $17 + 83$

$$\begin{array}{r} 17 \\ + 83 \\ \hline 100 \end{array}$$

2. Write XLIV in words.

XL IV

40 + 4

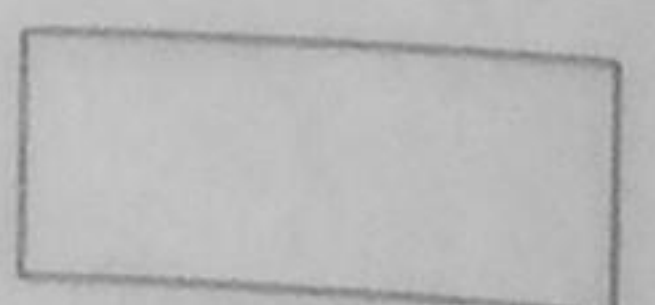
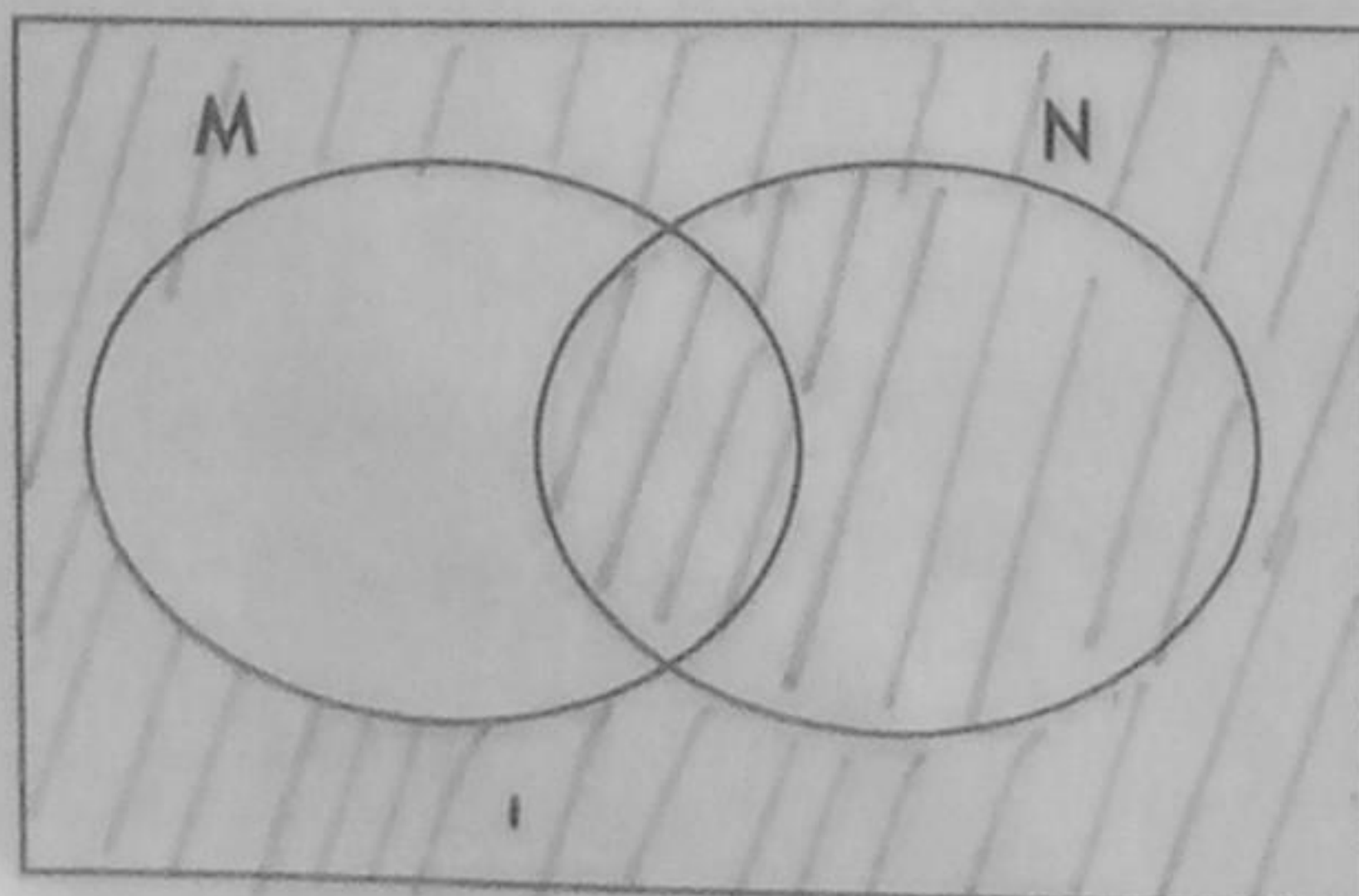
44 \rightarrow Forty-four

3. Find the product of the first three odd numbers.

odd nos $\rightarrow 1, 3, 5$

product $\rightarrow 1 \times 3 \times 5$
15

4. In the Venn diagram below, shade the complement of set $M - N$.

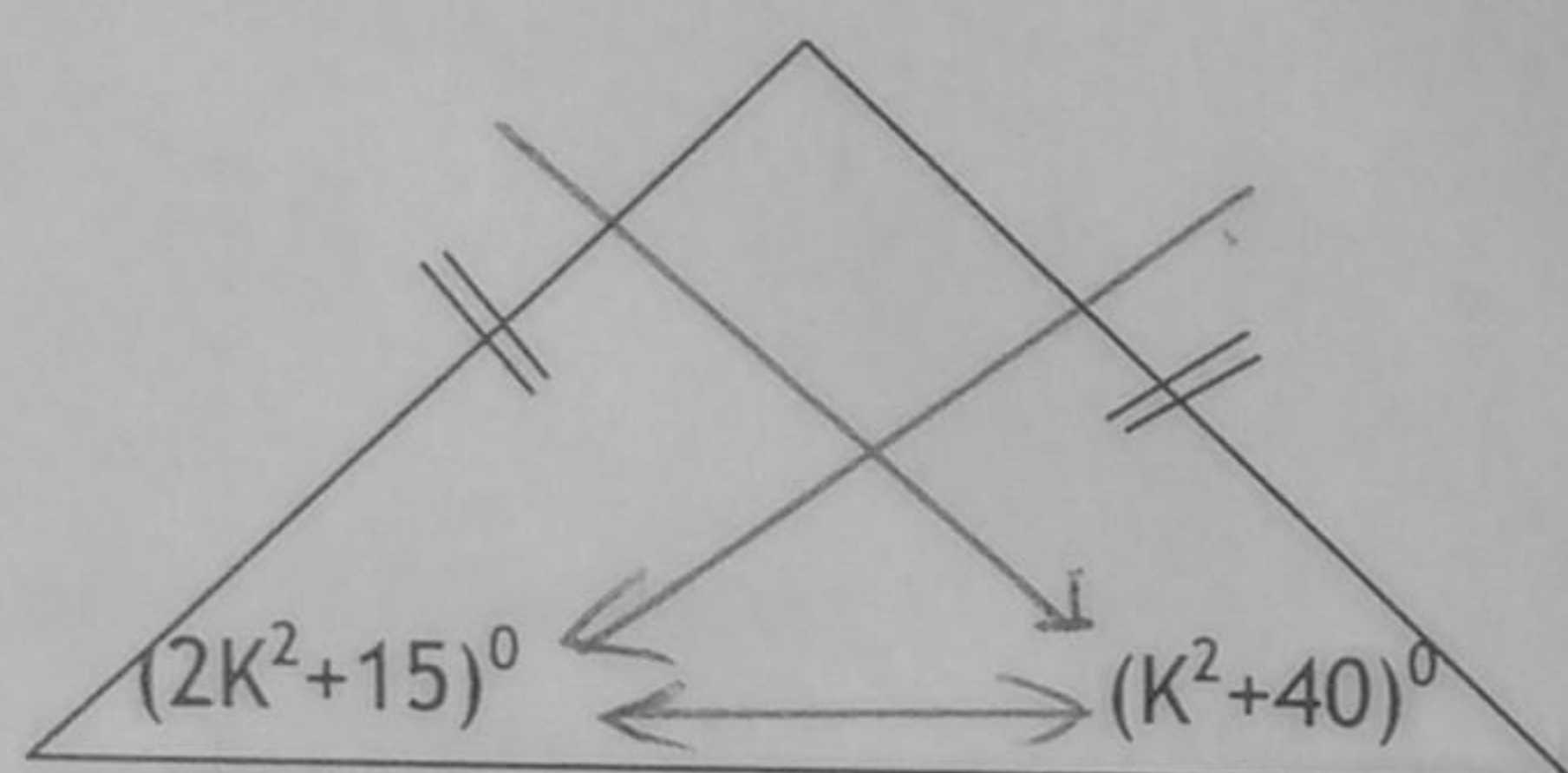


9. A pine tree is the 3rd from the four cardinal directions. If the trees are planted at a distance of 2 metres apart, find the total distance among all the trees.

$$\text{No. of gaps} = 4$$

$$\text{Distance} = 4 \times 2\text{m} \\ 8\text{m}.$$

10. Study the figure below and use it to find the value of K.



$$(2k^2 + 15)^\circ = (k^2 + 40)^\circ$$

$$2k^2 + 15 = k^2 + 40$$

$$2k^2 + 15 - 15 = k^2 + 40 - 15$$

$$2k^2 = k^2 + 25$$

$$2k^2 - k^2 = k^2 - k^2 + 25$$

$$\sqrt{k^2} = \sqrt{25}$$

$$\underline{\underline{k = 5}}$$

11. Find the mean of 3, $2P + 2$, $3P$, 0 and 5.

$$\text{mean} = \frac{3 + 2P + 2 + 3P + 0 + 5}{5}$$

$$\text{mean} = \frac{3 + 2 + 0 + 5 + 2P + 3P}{5}$$

$$\frac{10 + 5P}{5}$$

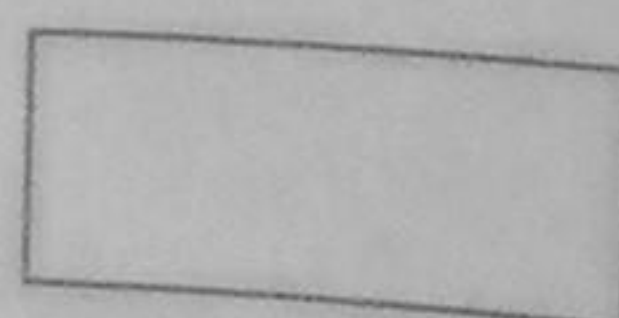
$$\text{mean} = \underline{\underline{2 + P}}$$

12. Factorize completely: $6p^2q - 4pq^2$

2	$6p^2q$	$4pq^2$
p	$3p^2q$	$2pq^2$
q	$3pq$	$2q^2$
	$3p$	$2q$

$$2 \times p \times q (3p - 2q)$$

$$\underline{\underline{2pq(3p - 2q)}}$$



13. How many elements are in a set with 1 subset?

$$2^n = n(\subseteq)$$

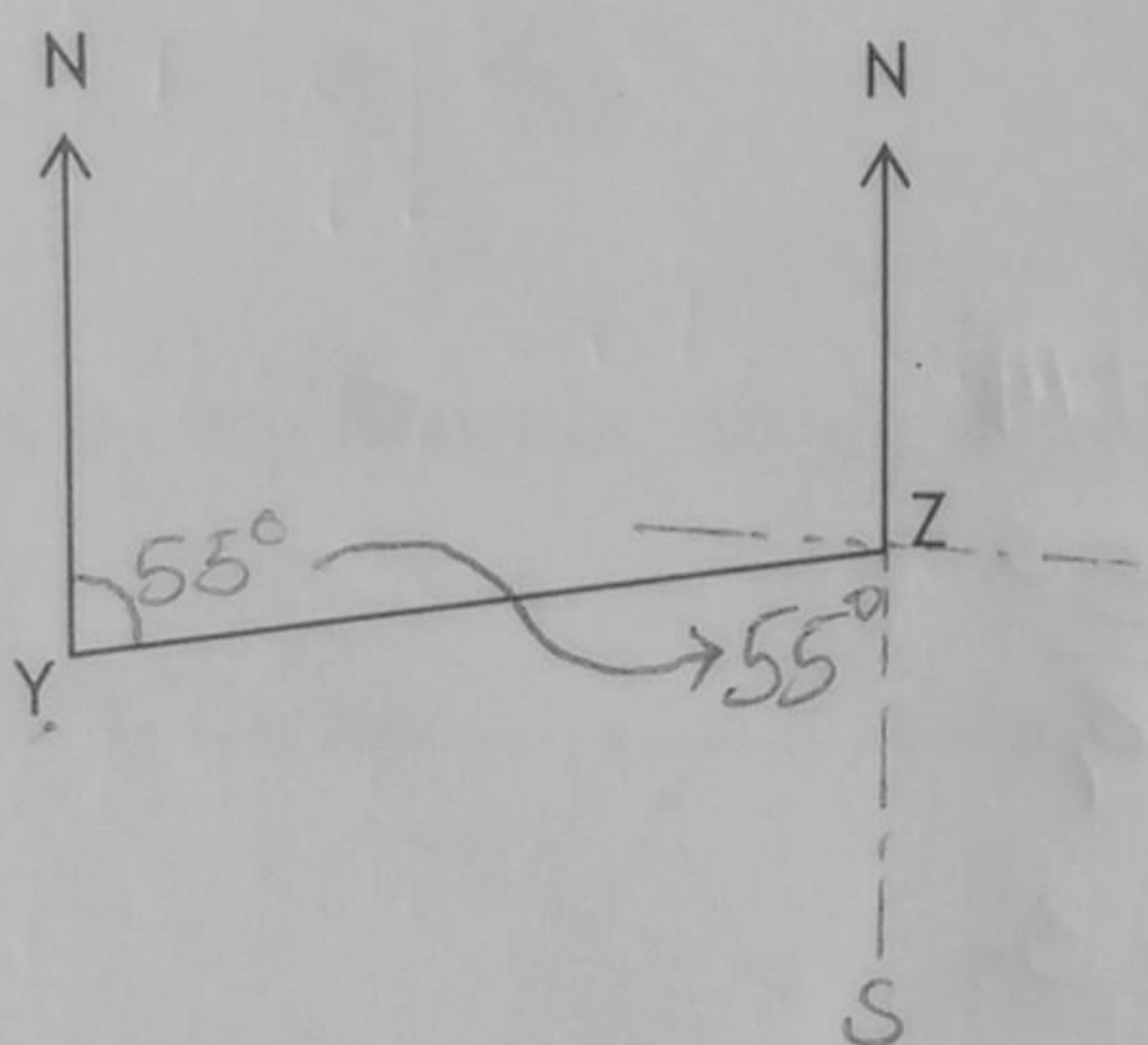
$$2^n = 1$$

$$2^n = 2^0$$

$$n = 0$$

It is an empty set.

14. The direction of Z from Y is N55°E. Find the opposite direction of Y from Z using the diagram below.



S55°W

15. At Jerox Forex Bureau, the exchange rates are as shown in the table below.

Currency	Buying rate	Selling rate
US dollar 1	Ug. shs.3630	Ug. shs.3710

If a tourist comes to Entebbe with US dollars 810, how much money in Uganda shillings will the tourist get from Jerox Forex Bureau?

$$\begin{array}{lcl}
 1 \text{ US dollar} & \longrightarrow & \text{Ugsh. } 3,650 \\
 810 \text{ US dollars} & \longrightarrow & \text{Ugsh. } 3,650 \times 810 \\
 & \longrightarrow & \underline{\underline{\text{Ugsh. } 2,956,500}}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{r}
 54 \\
 365 \\
 \times 81 \\
 \hline
 365 \\
 2920 \\
 \hline
 29565
 \end{array}
 \end{array}$$

16. Write 0.0673 in scientific notation.

$$0.0673 \times 10 = 0.673$$

$$0.673 \times 10 = 6.73$$

$$0.0673 \rightarrow \underline{\underline{6.73 \times 10^{-2}}}$$

17. Solve for the value of y : $4(y - 3) - (2 - y) = 1$

$$4xy - 4 \times 3 - 2 + y = 1$$

$$4y - 12 - 2 + y = 1$$

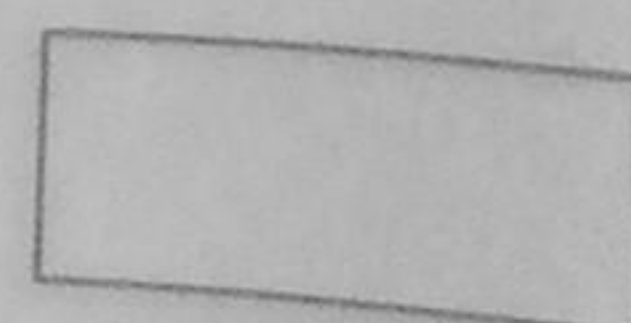
$$4y + y - 14 = 1$$

$$5y - 14 + 14 = 1 + 14$$

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

$$y = 3$$

18. Using a ruler, a pencil and a pair of compasses only, construct an angle of 75° in the space below.



19. It started raining at 10:40pm and stopped at 11:20am. For how many hours did it rain?

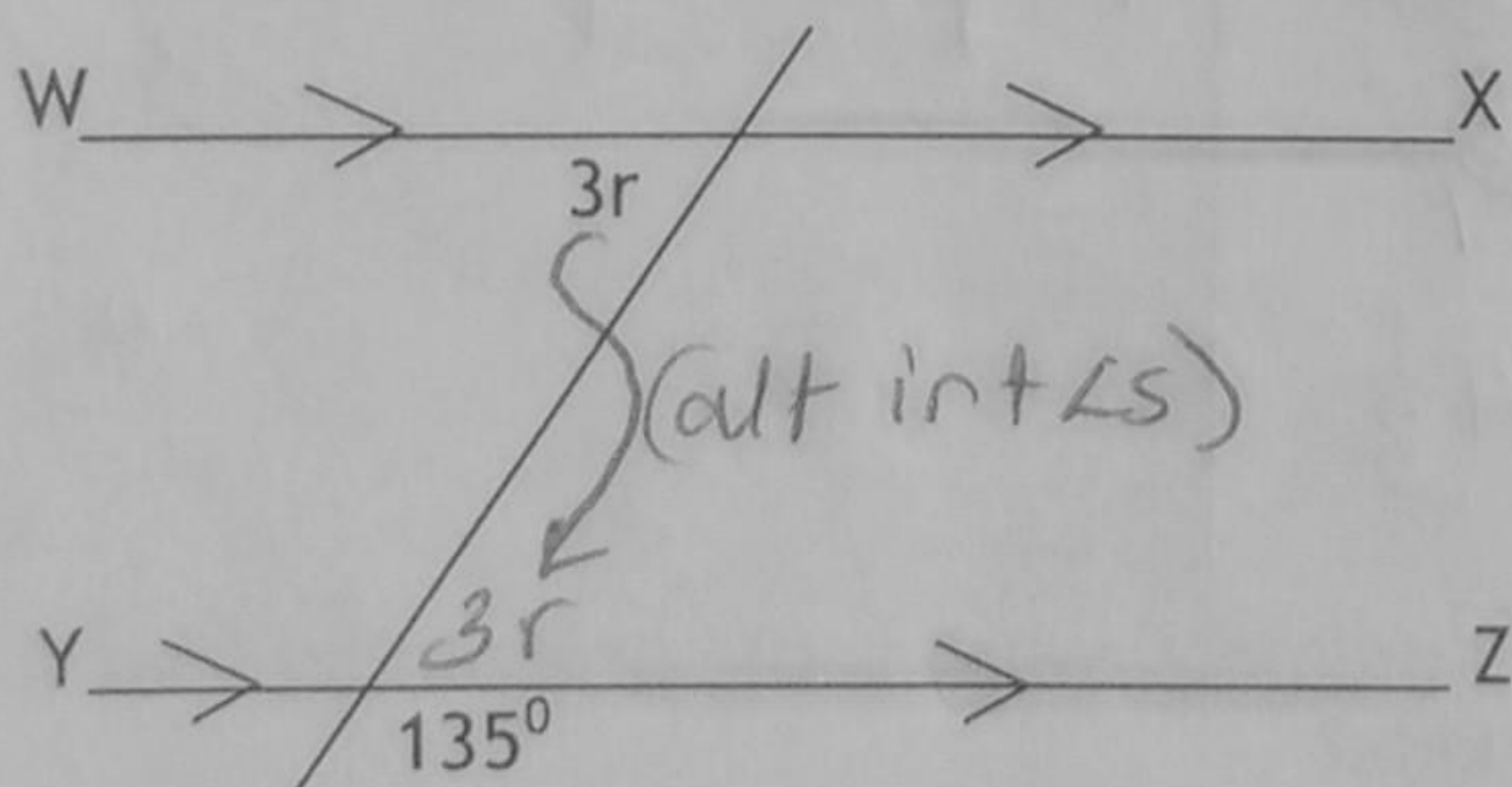
H	M
12	00
- 10	40
1	20

Total time	
H	M
1	20
+ 11	20
12	40

$$12 \frac{40}{60} \text{ hours}$$

$$\underline{\underline{12 \frac{2}{3} \text{ hours}}}$$

20. In the figure below, WX is parallel to YZ. Calculate the value of r in degrees.

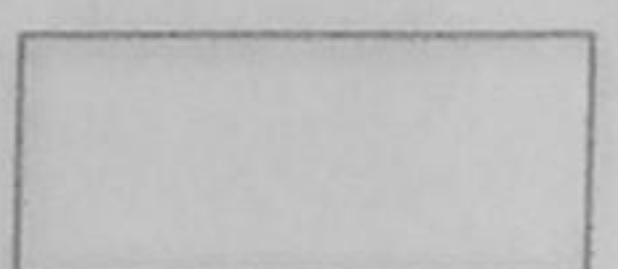


$$3r + 135^\circ = 180^\circ$$

$$3r + 135^\circ - 135^\circ = 180^\circ - 135^\circ$$

$$\frac{3r}{3} = \frac{45^\circ}{3}$$

$$\underline{\underline{r = 15^\circ}}$$



22. Primary seven class takes 6 days to weed a school garden and primary six class takes 1 week and 5 days to weed the same garden.

(a) How many days will both classes take to weed the garden altogether?

$$P.7 \text{ in 1 day} \rightarrow \frac{1}{6}$$

$$P.6 \rightarrow 1 \text{ week} = 7 \text{ days}$$

$$7 \text{ days} + 5 \text{ days} = 12 \text{ days}$$

$$P.6 \text{ in 1 day} \rightarrow \frac{1}{12}$$

Both in 1 day

$$\frac{1}{6} + \frac{1}{12} = \frac{2+1}{12}$$

$$\frac{3}{12} = \frac{1}{4}$$

$$1 \text{ garden} \div \frac{1}{4}$$

$$1 \times \frac{4}{1}$$

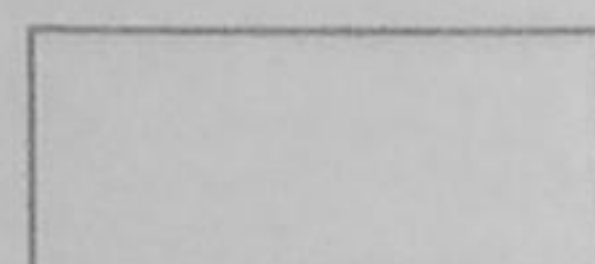
$$4 \text{ days}$$

(2 marks)



- (b) If the school garden has perimeter of 60m. How many square metres (m^2) do both classes weed per day?

(2 marks)



23. A mother is thrice as old as her son who is K years old. In 2 years' time, the product of their age will be $8(K + 38)$.

(a) Find the mother's actual age now.

	Son	Mother
Now	k	$3k$
In 2 yrs	$k+2$	$3k+2$

$$(k+2) \times (3k+2) = 8(k+38)$$

$$(k \times 3k) + (k \times 2) + (2 \times 3k) + (2 \times 2) = 8k + 304$$

$$3k^2 + 2k + 6k + 4 = 8k + 304$$

$$3k^2 + 8k + 4 - 4 = 8k + 304 - 4$$

(b) Work out their total age now.

$$(30 + 10) \text{ years}$$

40 years.

(c) How old was her son in 5 years ago?

$$(10 - 5) \text{ years}$$

5 years

He was 5 years old.

(3 marks)

$$3k^2 + 8k = 8k + 300$$

$$3k^2 + 8k - 8k = 8k - 8k + 300$$

$$\frac{3k^2}{3} = \frac{300}{3}$$

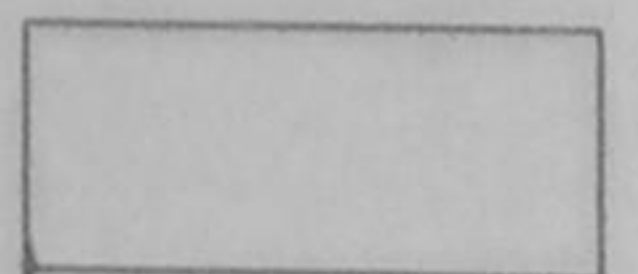
$$\sqrt{k^2} = \sqrt{100}$$

$$k = 10$$

Mother: $3 \times 10 \text{ years}$

30 years.

(2 marks)



24. The table below shows the points scored by pupils in a spelling bee competition.

Points	85	75	80	95
Number of pupils	3	1	4	2

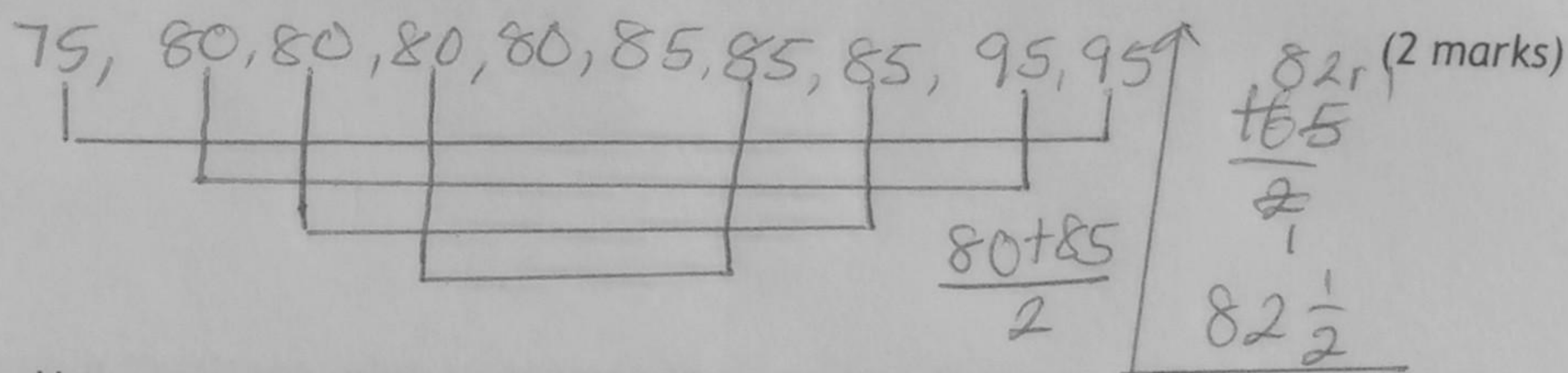
- (a) How many pupils participated in the competition?

$$3 + 1 + 4 + 2$$

10 pupils.

(1 mark)

- (b) Find the median points.



- (c) How many pupils scored below the mean points mark?

$$\text{mean} = \frac{(85 \times 2) + 75 + (80 \times 4) + (95 \times 2)}{10}$$

$$\text{mean} = \frac{170 + 75 + 320 + 190}{10}$$

$$\text{mean} = \frac{755}{10}$$

$$\text{mean} = 75.5$$

No. of pupils

1 pupil.

(2 marks)

25. The interior angle of a regular polygon is four times its exterior angle.

- (a) Name the regular polygon.

Let 'n' rep ext \angle

ext \angle	int \angle	sum
n	4n	180°

$$n + 4n = 180^\circ$$

$$\frac{5n}{5} = \frac{180^\circ}{5}$$

$$n = 36^\circ$$

No. of sides

$$\frac{360^\circ}{36^\circ}$$

$$\frac{360^\circ}{36^\circ} = 10$$

$$\frac{360^\circ}{36^\circ} = 10$$

$$\frac{360^\circ}{36^\circ} = 10$$

$$\frac{360^\circ}{36^\circ} = 10$$

10 sides

It is a regular decagon.

(2 marks)

- (b) Calculate the sum of its interior angles.

$$\text{int } \angle \text{sum} = 180^\circ(n-2)$$

$$\text{int } \angle \text{sum} = 180^\circ(10-2)$$

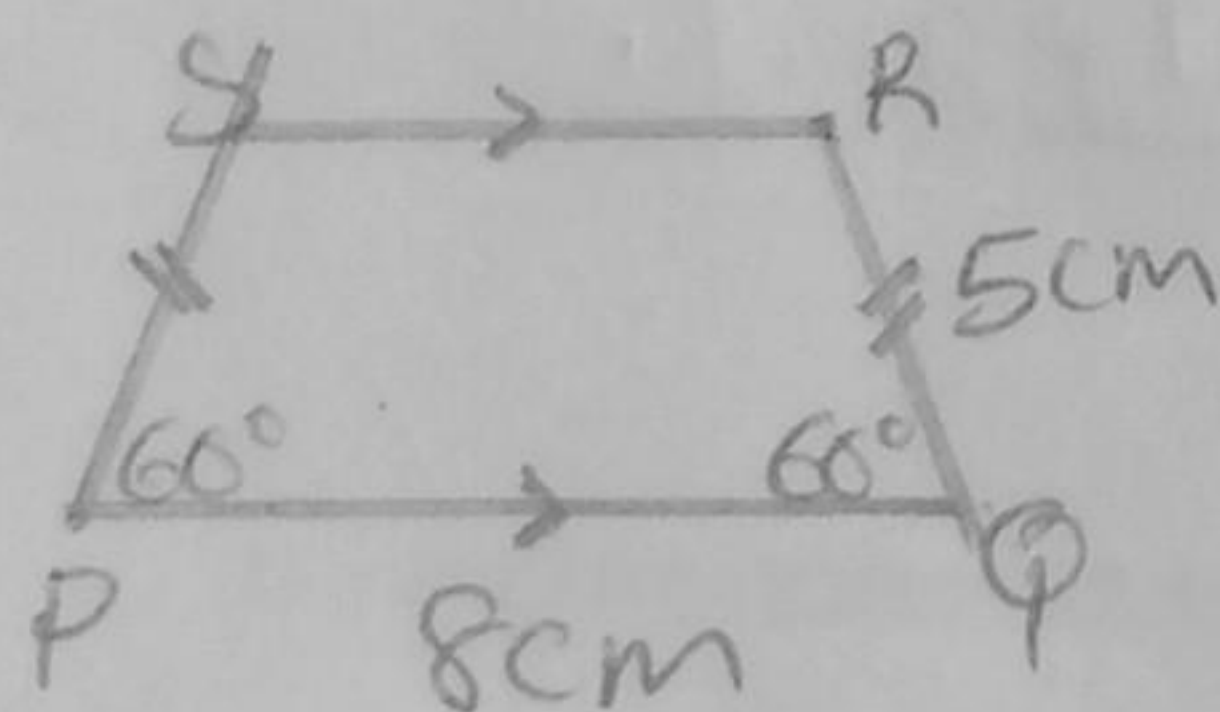
$$\text{int } \angle \text{sum} = 180^\circ \times 8$$

$$\underline{\underline{\text{int } \angle \text{sum} = 1440^\circ}}$$

$$\begin{array}{r} 18 \\ \times 8 \\ \hline 144 \end{array}$$

- 26(a) Using a ruler, a pencil and a pair of compasses only, construct a quadrilateral PQRS in which $PQ = 8\text{cm}$, $QR = PS = 5\text{cm}$ and angle $PQR = SPQ = 60^\circ$.

Sketch.



- (b) Measure the length of line SR in cm.

(1 mark)

27. * Mama went shopping with two-twenty thousand shilling notes and bought the items shown in the bill below. Use it to answer the questions that follow.

Item	Quantity	Unit cost	Total cost
Beef	4kgs	shs. 10,000	shs. <u>40,000</u>
Bread	3 loaves	shs. <u>4,200</u>	shs. 12,600
Cooking oil	_____ litres	shs. 3,600	shs. _____
Sugar	2½kgs	shs. 4,000	shs. <u>10,000</u>
Total Expenditure			shs. 20,000

- (a) Complete the table above.

(5 marks)

Beef
 $4 \times \text{sh. } 10,000$
 $\text{sh. } 40,000$

Bread
 $\text{sh. } 4,200$
 $3,$
 $\text{sh. } 12,600$

Sugar
 $5 \times \text{sh. } 2,000$
 $2,$
 $\text{sh. } 10,000$

- (b) How much money did Mama go back with?

(1 mark)

28. (a) Simplify: $\frac{1.2 \times 0.008}{0.16 \times 0.3}$

(3 marks)

$$\left(\frac{12}{10} \times \frac{8}{1000} \right) \div \left(\frac{16}{100} \times \frac{3}{10} \right)$$

$$\frac{12^4 2}{10} \times \frac{8^1}{1000} \times \frac{100}{16} \times \frac{10}{3}$$

$$\frac{2}{10} = 0.2$$

(b) Solve the inequality and write down the solution set: $18 \leq 3n \leq 24$

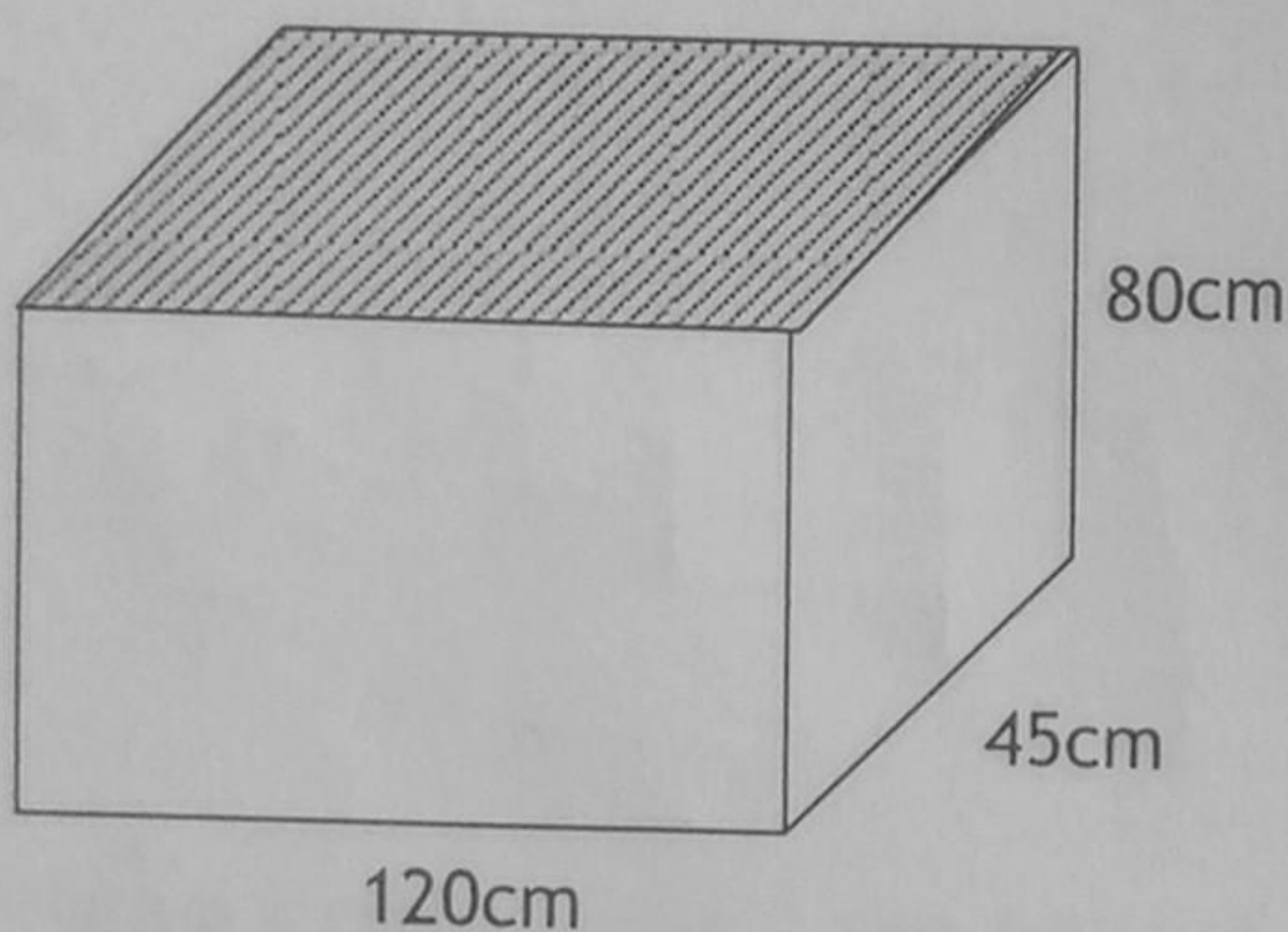
(2 marks)

$$\frac{18}{3} \leq \frac{3n}{3} \leq \frac{24}{3}$$

$$6 \leq n \leq 8$$

$$n = \{6, 7, 8\}$$

29. The figure below shows an open cuboid. Study it carefully and answer the questions that follow.



(a) Calculate the capacity of the above cuboid above if it is a fifth full.

(3 marks)

$$C = \frac{V}{1000 \text{ cm}^3}$$

$$C = \frac{120 \text{ cm} \times 45 \text{ cm} \times 80 \text{ cm}}{1000 \text{ cm}^3}$$

$$C = 432 \text{ Litres.}$$

when its $\frac{1}{5}$ full

$$\frac{1}{5} \times 864 \text{ litres}$$

$$= 172.8 \text{ litres}$$

$$= 86 \frac{2}{5} \text{ litres}$$

$$\begin{array}{r} 7 \\ 48 \\ \times 9 \\ \hline 432 \end{array}$$

(b) Work out its Total Surface Area (T.S.A).

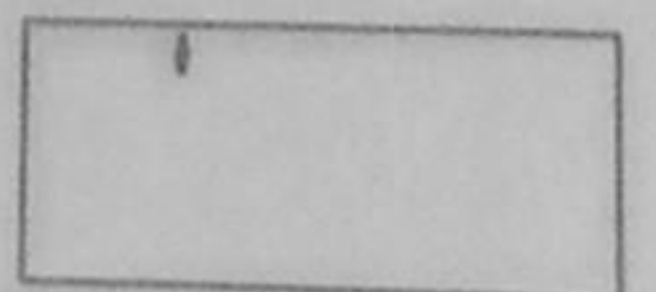
(2 marks)

$$T.S.A = LW + 2LH + 2WH$$

$$T.S.A = (120 \times 45) \text{ cm}^2 + (2 \times 120 \times 80) \text{ cm}^2 + (2 \times 45 \times 80) \text{ cm}^2$$

$$T.S.A = 5400 \text{ cm}^2 + 19200 \text{ cm}^2 + 7200 \text{ cm}^2$$

$$\begin{array}{r} 19200 \text{ cm}^2 \\ 7200 \text{ cm}^2 \\ + 5400 \text{ cm}^2 \\ \hline 26940 \text{ cm}^2 \end{array}$$



$$\begin{array}{r} 48 \\ \times 12 \\ \hline 96 \\ 480 \\ \hline 576 \end{array}$$

30. (a) Solve: $\frac{2x-1}{3} = \frac{x+3}{2}$ $L.C.D = 6$

$$\frac{2(2x-1)}{3} = \frac{3(x+3)}{2}$$

$$2(2x-1) = 3(x+3)$$

$$4x-2 = 3x+9$$

$$4x-2+2 = 3x+9+2$$

$$4x = 3x+11$$

$$4x-3x = 3x-3x+11$$

$$\underline{x = 11}$$

(3 marks)

(b) Jack, Joan and John shared some biscuits in the ratio of 4:5:3 respectively. If Joan got 18 more biscuits than John, how many biscuits did Jack and John get altogether?

Total ratio: $4+5+3 = 12$

Difference: $5-3 = 2$

2 parts \rightarrow 18 biscuits

1 part \rightarrow 9 biscuits

Jack $\rightarrow 4 \times 9$

36 biscuits

John $\rightarrow 3 \times 9$

27 biscuits

Total $\rightarrow 36$

+ 27

63 biscuits.

(2 marks)

31. A motorist started his journey from Town A at 7:00 am, driving at a speed of 60km/hr and reached Town B in 4 hours. He rested for $1\frac{1}{2}$ hours and returned at a steady speed of 120km/hr.

(a) At what time did the motorist reach Town A?

From A to B

$$D = \frac{60\text{km}}{1\text{h}} \times 4\text{h}$$

$$D = 240\text{km}$$

From B to A

$$T = \left(\frac{240}{120}\right)\text{h}$$

$T = 2\text{ hours}$

Total duration

$$(4 + 1\frac{1}{2} + 2)\text{h}$$

$$7\frac{1}{2}\text{h}$$

$$7\text{h } 30\text{min}$$

E.T. =

H	M
7	00
+ 7:30	
14	30

7:00

+ 7:30

14:30

H M

14 30

- 12:00

2:30 pm

(3 marks)

(b) Calculate the motorist's average speed for the whole journey.

(2 marks)

$$A.S = \frac{T.D.C}{T.T.T}$$

$$A.S = \frac{(240+240)}{7\frac{1}{2}}$$

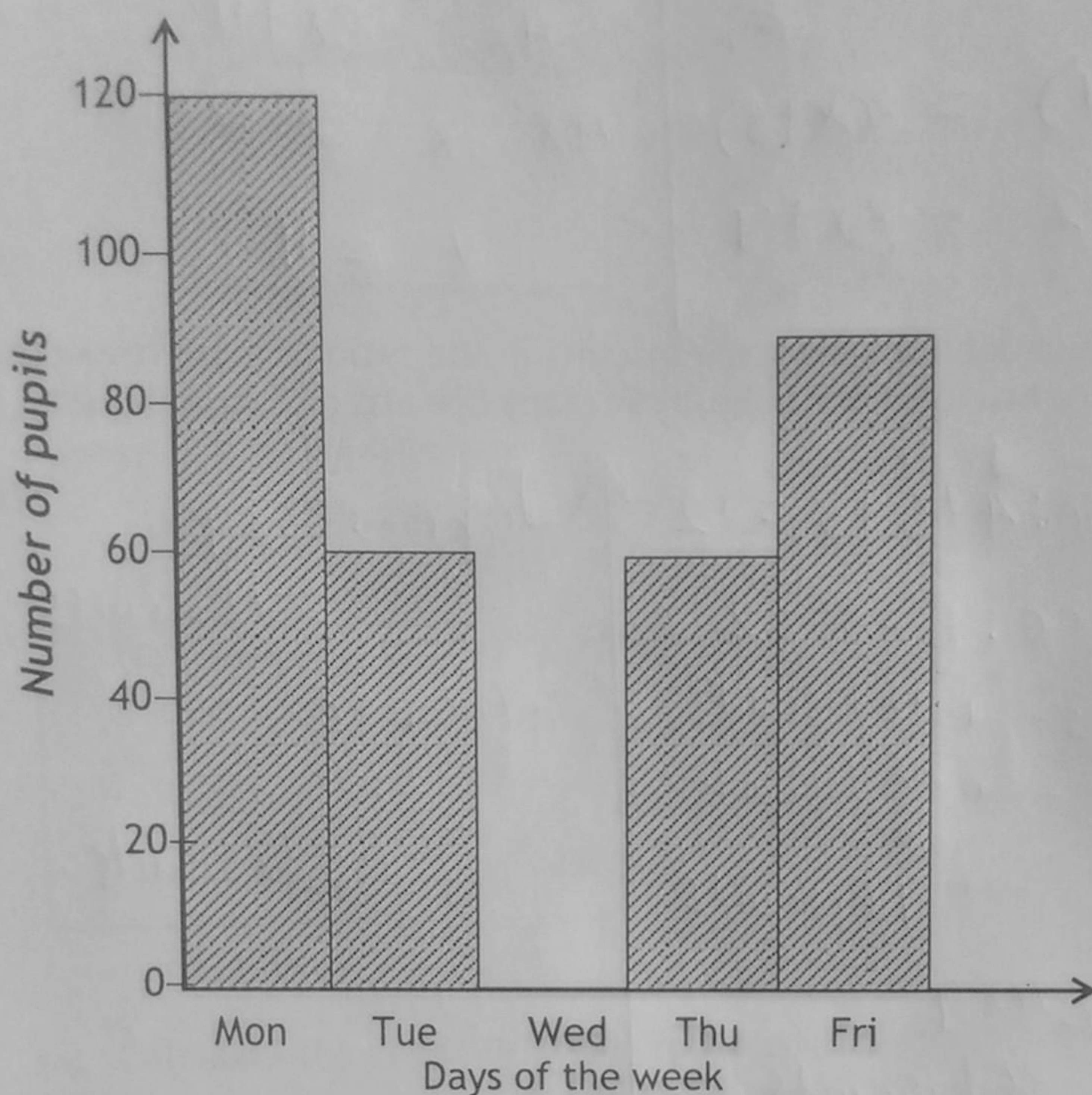
$$A.S = \left(\frac{480 \div \frac{15}{2}}{\frac{15}{2}}\right)\text{km/h}$$

$$A.S = \left(\frac{480 \times \frac{2}{15}}{\frac{15}{2}}\right)\text{km/h}$$

$$\underline{A.S = 64\text{km/h.}}$$

Turn Over

32. The graph below represents the number of absentees that were recorded in Crane Junior School in a certain week. Study it carefully and answer the questions that follow.



- (a) Which day was most likely to be a public holiday?

(1 mark)

Monday

- (b) How many more pupils attended on Tuesday than on Friday?

(1 mark)

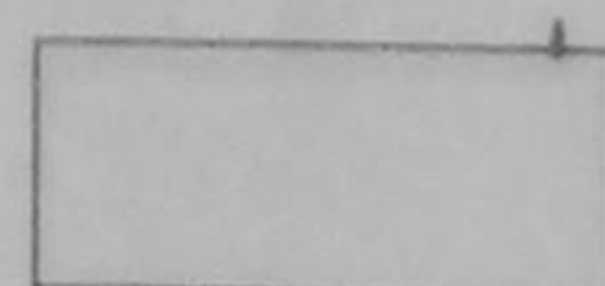
Fri → 90 pupils
 Tue → 60 pupils
30 pupils more

- (c) Find the total number of absentees in the whole week.

(2 marks)

Mon → 120
 60
 60
 + 90

 330 pupils



END