Accept other Alternatives where necessary.

KAMPALA CAPITAL CITY AUTHORITY

DIRECTORATE OF EDUCATION AND SOCIAL SERVICES

PRIMARY SEVEN MOCK EXAMINATION 2024

MATHEMATICS

TIME ALLOWED: 2 HOURS 15 MINUTES

INDEX NO.	***EMIS No.***						***Personal No.***		

CANDIDATE'S NAME: TR. KATO MUGERA KULANSHI

CANDIDATE'S SIGNATURE: .....

EMIS No: 0770847480 | 0705618971

DIVISION NAME: GUIDE

Read the following instructions carefully.

1. This paper is made up of 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 in both sections **A** and **B**
5. ALL answers **MUST** be written in Blue or Black Ball - point pen or ink.
6. Un-necessary alteration of work may lead to loss of marks.
7. All diagrams **MUST** be drawn in pencil.
8. Any handwriting that cannot be easily read may lead to loss of marks.
9. Do **not** fill any thing in the boxes shown ***"For Examiner's use only".***

FOR EXAMINERS' USE ONLY

QN. NO.	*MARKS*	*SIGN*
1 - 6		
7 - 13		
14 – 20		
21 - 25		
26 - 29		
30 - 32		
TOTAL		

TURN OVER

SECTION A (40 MARKS)

1. Workout: 12 + 17

12
+17 M1
29 A1

OR

10 + 2
+10 + 7
20 + 9 √

20
+9
29 √

2. Simplify: 2y + y + 3y

3y + 3y B1
6y B1

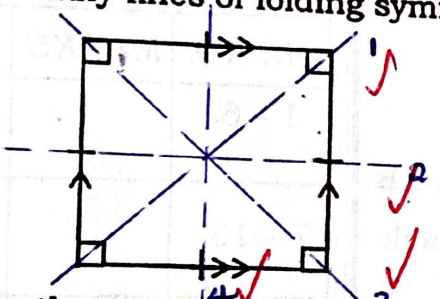
3. Express 1101_{two} to base ten.

3	2	1	0
1	1	0	1
2	2	2	2

$(1\times2^3)+(1\times2^2)+(0\times2^1)+(1\times2^0)$ M1
$(1\times2\times2\times2)+(1\times2\times2)+(0\times2)+(1\times1)$
8 + 4 + 0 + 1 √

12 + 1 √
13 ten A1

4. How many lines of folding symmetry has the figure below.



1 √
2 √
3 √
4 √

4 lines of folding symmetry. B2

5. Given that set Q has 8 subsets. Calculate the number of elements in set Q.

$C = 2^n$
$2^n = C$
$2^n = 8$ subsets M1
$2^n \rightarrow 2^3 = 2^3$ √

n = 3 elements √
n(Q) = 3 A1

8
2 4 √
2 2
2 1

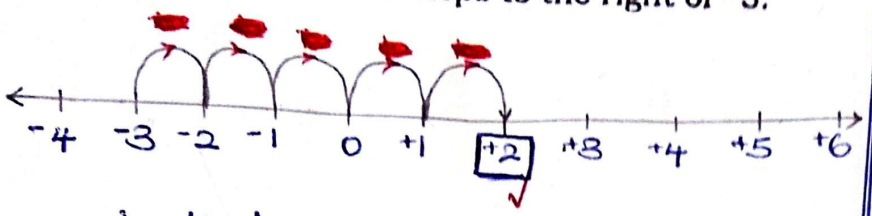
6. Work out the square root of 0.36.

$\sqrt{0.36}$ M1
$\sqrt{\frac{36}{100}}$ √

$\frac{6}{10}$ √
0.6 A1

$\frac{6}{10}$ √

7. What integer is five steps to the right of -3.



∴ It is +2. B2

OR

$-3+5 = +2$ ✓

OR

Let the integer be k

$k - 5 = -3$ ✓

$k - 5 + 5 = -3 + 5$ ✓

$k = +2$ ✓

8. The mean of 9, 8, 6, 4 and x is 6, work out the value of x.

$\text{Mean} = \frac{\text{Sum of all items}}{\text{Number of all items}}$

$M = \frac{S.O.I}{N.O.I}$

$6 = \frac{9+8+6+4+x}{5}$ M1

$6 = \frac{27+x}{5}$ ✓

$5 \times 6 = \frac{27+x}{5} \times 5$ ✓ M1

$30 = 27 + x$ ✓

$30 - 27 = 27 - 27 + x$ ✓

$3 = x$

$x = 3$ A1

9. What morning time is shown on the clock face below?

It is 8:35 a.m B2

OR

25 minutes to 9 O'clock in the morning B2

10. Use distributive property to work out: (8.5 x 6) + (8.5 x 14)

$8.5(6+14)$

8.5×20 M1

$\frac{85}{10} \times 20$ ✓

85×2 ✓

170 A1

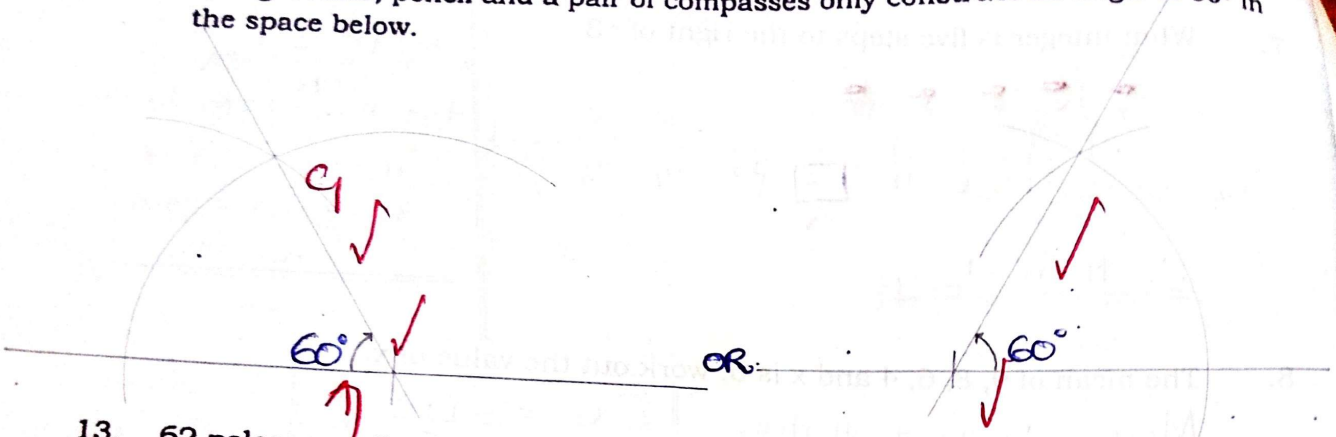
11. Find the next number in the sequence:

2, 3, 5, 7, 11

2, 3, 5, 7, 11 B2

These are prime numbers. ✓

12. Using a ruler, pencil and a pair of compasses only construct an angle of 60^0 in the space below.



13. 62 poles were fixed along a straight road. The poles are fixed 5m apart. Work out the length of the road.

Number of poles = $\frac{\text{Distance}}{\text{Interval}} + 1$

$62 = \frac{\text{Distance}}{5\text{m}} + 1$

$62 - 1 = \frac{\text{Distance} + 1 - 1}{5\text{m}}$

$61 = \frac{\text{Distance}}{5\text{m}}$

$5\text{m} \times 61 = \frac{\text{Distance}}{5\text{m}} \times 5\text{m}$

$305\text{m} = \text{Distance}$

Distance = 305m

14. What number has been expanded to give $(9 \times 10^2) + (7 \times 10^0) + (8 \times 10^{-1})$.

$(9 \times 10 \times 10) + (7 \times 1) + (8 \times \frac{1}{10})$

$(9 \times 100) + (7 \times 1) + (8 \times \frac{1}{10})$

$900 + 7 + (8 \times 0.1)$

$900 + 7 + 0.8$

90.0.0
7.0
+ 0.8
907.8

∴ The number is 907.8

15. Sh. 60,000 can buy only 5 books. How many similar books would Amos buy with sh. 108,000?

Sh. 60,000 buy 5 books.

Sh. 1 buys $\frac{5}{\text{Sh. } 60{,}000}$

Sh. 108,000 will buy $\frac{5}{\text{Sh. } 60{,}000} \times \text{Sh. } 108{,}000$

$\left(\frac{1}{\text{Sh. } 60} \times \text{Sh. } 108\right)$ books

1 + 12

1

9 books.

16. Work out the smallest number of oranges that when divided amongst either 8 boys or 6 girls leaves 5 oranges as the remainder.

2	6	8
2	3	4
2	3	2
3	3	1
	1	1

$(2 \times 2 \times 2 \times 3) + 5$

$(8 \times 3) + 5$

(24+5) oranges

29 oranges

$M_6 = \{6, 12, 18, (24), 30, \ldots\}$

$M_8 = \{8, 16, (24), 32, 40, \ldots\}$

(24+5) oranges

29 Oranges

17. Work out $8 + 8 \div 8$

BODMAS

$8 + (8 \div 8)$

$8 + 1$

9

18. NOZU deposited sh. 72, 000 in post bank that gives interest rate of 10% per year for a period of 1½ years. Calculate the interest NOZU will get in her account.

S.I = PXRXT

$S.I = Sh.72{,}000 \times \frac{10}{100} \times 1\frac{1}{2}$

$S.I = Sh.72{,}000 \times \frac{10}{100} \times \frac{3}{2}$

$S.I = Sh.\ 36\ 72{,}000 \times \frac{10}{100} \times \frac{3}{2}$

$S.I = Sh.360 \times 10 \times 3$

$S.I = Sh.3600 \times 3$

S.I = Sh. 10800

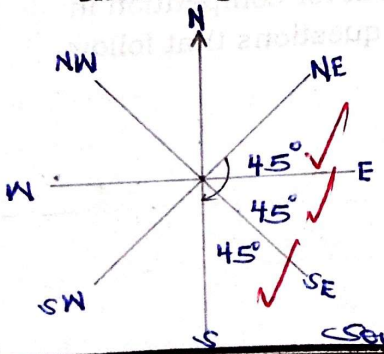
$1\frac{1}{2}$

$\frac{(1 \times 2) + 1}{2}$

$\frac{2+1}{2}$

$\frac{3}{2}$

19. Ademuni was facing North-East and turned clockwise 135°. Which direction is she facing now?



She is facing in South direction

B2

1
45°
45°
+45°
135°

20. Round off 39.96 to the nearest tenths.

T	O		TS	HS
3	9	·	9	6

RPV

39.9
+ 0.1
40.0

∴ 39.96 ≈ 40.0

SECTION B (60 MARKS)

21. Some children in primary six class scored the following marks in a test: 42, 35, 28, 40, 35 and 60.

a) Work out the median mark. **(2 marks)**

28, 35, 35, 40, 42, 60

35 + 40

$\frac{35+40}{2}$

$\frac{75}{2}$

$37\frac{1}{2}$

OR

37.5 if long division applied

b) Calculate the mean score. **(2 marks)**

$\text{Mean} = \frac{\text{Sum of all items}}{\text{Number of all items}}$

$\text{Mean} = \frac{28+35+35+40+42+60}{6}$

$\text{Mean} = \frac{240}{6}$

$\text{Mean} = \frac{40}{\cancel{240}\,1}$

Mean = 40

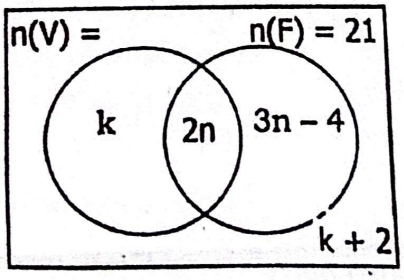
c) Find the modal frequency. **(1 mark)**

Marks	28	35	40	42	60
Frequency	1	2	1	1	1

∴ The modal frequency is 2

22. The Venn diagram represents a school team that went out for competition in Football **(F)** and Volleyball **(V)**, Study it and answer the questions that follow.

n(ℰ) = 35



a) Find the value of n. **(2 marks)**

$2n + 3n - 4 = 21$ M

$5n - 4 = 21$ ✓

$5n - 4 + 4 = 21 + 4$ ✓

$5n = 25$ ✓

$\frac{1}{\cancel{5}}n = \frac{5}{\cancel{25}}$ ✓

$n = 5$ A

b) If 14 players did not play Football (F), work out the value of k. **(2 marks)**

$K + K + 2 = 14$ M

$2k + 2 = 14$ ✓

$2k + 2 - 2 = 14 - 2$ ✓

$2k = 12$ ✓

$\frac{1}{\cancel{2}k} = \frac{6}{\cancel{12}}$ ✓

$k = 6$ A

c) How many players went out for the competitions? **(2 marks)**

$K + 2n + 3n - 4 + K + 2$ B

$6 + (2 \times 5) + (3 \times 5) - 4 + 6 + 2$ ✓

$6 + 10 + (15 - 4) + 6 + 2$ ✓

$6 + 10 + 11 + 6 + 2$ ✓

$16 + 17 + 2$ ✓

$16 + 19$ ✓

35 players B

23. a) An assemble that lasted 45 minutes ended at 9:10am when did it start? **(2 marks)**

Duration = 45 minutes

Ending time = 9:10 a.m

Starting time = ?

ST = E.T − D ✓

Hrs	Mins
9	10
− 00	45 ✓

Hrs	Mins
8	
9	10 + 60 ✓
− 0	45 ✓
8	25 B

8:25 a.m

It started at 8:25 a.m B

10 + 60

70 − 45 ✓

70 − 45

25 ✓

b) Express 0720hrs in 12hr clock system. **(1 mark)**

Hrs	Mins
07	20
− 00	00 ✓
7	20 ✓

∴ 0720hrs = 7 · 20 a.m B

c) A taxi moving at a speed of 120km per hour travelled for only 20 minutes. What distance did the taxi cover? **(2 marks)**

Speed = 120km/h
Time = 20 minutes
Distance = ?

Distance = Speed × Time
Distance = $120\text{km/h} \times \frac{20}{60}\text{h}$

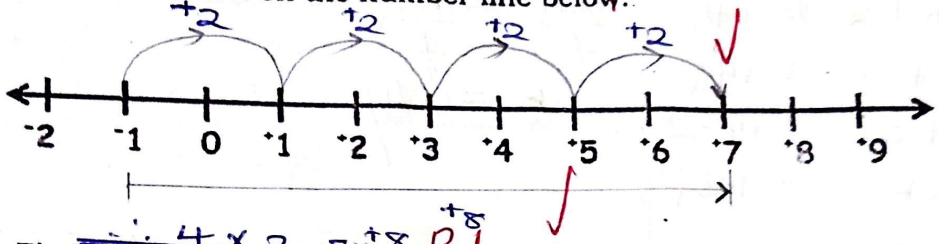
$D = 120\frac{\text{km}}{\text{h}} \times \left(\frac{1}{3}\right)\text{h}$

$D = \frac{40}{1}\text{km} \times \frac{1}{1}$

$D = 40\text{km}$

The taxi covered a distance of 40km. **(2 marks)**

24. a) Show 4 x 2 on the number line below.



$\therefore 4 \times 2 = +8$

b) Find the solution set for the inequality: $20 \geq 3p + 5 \geq 11$ **(3 marks)**

$20 - 5 \geq 3p + 5 - 5 \geq 11 - 5$

$15 \geq 3p \geq 6$

$\frac{15}{3} \geq \frac{3p}{3} \geq \frac{6}{3}$

$5 \geq p \geq 2$

$p = \{5, 4, 3, 2\}$

25. a) Express 94 in Roman numerals. **(2 marks)**

$90 = XC$
$+\ 4 = IV$
$94 = XCIV$

$90 + 4$
$XC \quad IV$
$94 = XCIV$

b) Work out the product of the value of 2 and the place value of 7 in the number 8529.736. **(3 marks)**

TTh	Th	H	T	O	t	h	th
8	5	2	9	.	7	3	6

2 × tens
2 × 10
20

tenth
0.1

Product
20×0.1
$2\cancel{0} \times \frac{1}{1\cancel{0}}$
2×1
2

26. A parent bought the items shown in the shopping bill below.

Work out and complete the bill. **(5 marks)**

Item	Quantity	Unit cost	Amount
Sugar	1 1/2 kg	Sh. 4,000	Sh. 6,000
Milk	1/4 litre	Sh. 2,000	Sh. 500
Meat	3kg	Sh. 15,000	Sh. 45,000
Rice	3/4 g	Sh. 4,000	Sh. 3,000
Total			Sh. 54,500

Sugar

Sh. 4,000 × 1 1/2

Sh. 2000/4000 × 3/2

Sh. 2,000 × 3

Sh. 6,000

Milk

Sh. 500

Sh. 2000

1/5 → 1/4

Rice

Sh. 3000

Sh. 4000

3/4

Meat

Sh. 54,500 − (Sh. 6000 + Sh 30000 + Sh 500)

Sh. 54,500 − Sh. 9,500

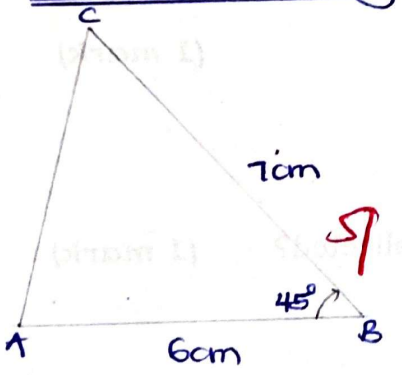
Sh. 45,000

Sh. 15000/3

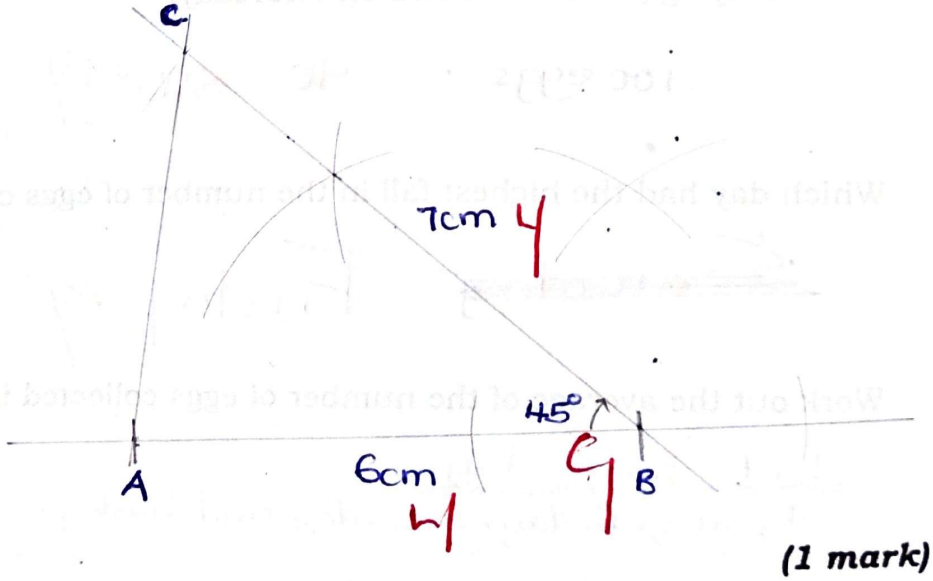
Sh. 15,000

27. a) Using a ruler, pencil and a pair of compasses only construct a triangle ABC where $\overline{AB}$ = 6cm, angle ABC = 45°, $\overline{BC}$ = 7cm. **(4 marks)**

Sketch drawing



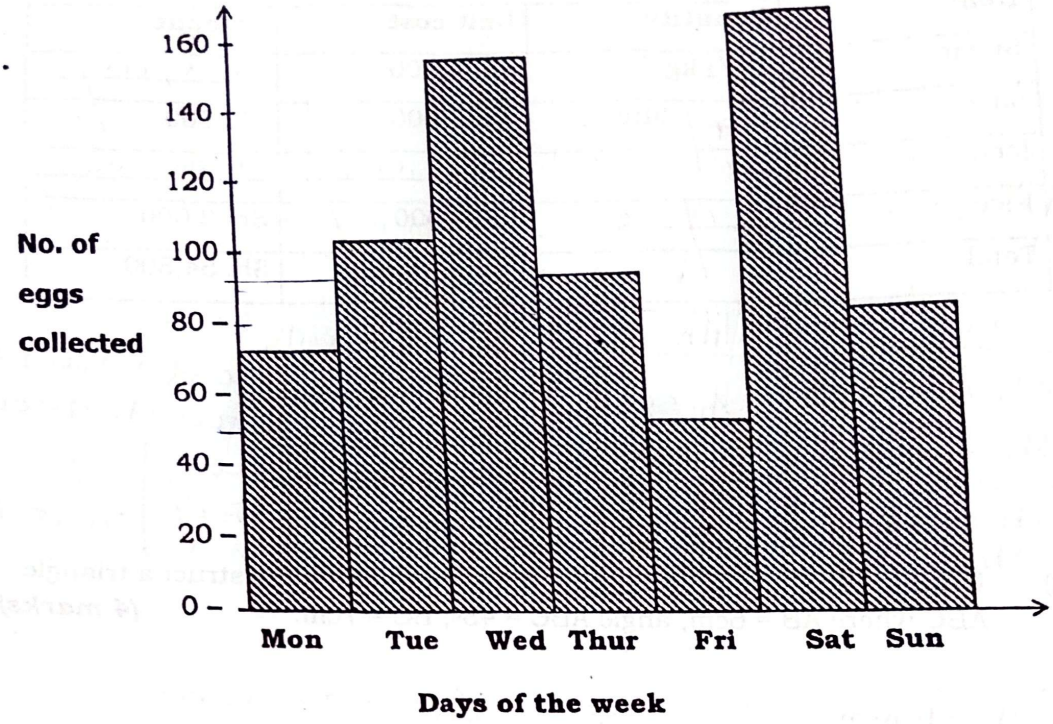
Accurate drawing



b) Measure angle BAC. **(1 mark)**

∠BAC = 79° or 80° or 82°

28. The graph below shows the number of eggs collected in Jojo's poultry farm in a week. Study and answer the questions.



a) How many eggs were collected on Thursday? **(1 mark)**

90 eggs B1

b) Which day had the highest fall in the number of eggs collected? **(1 mark)**

Friday B1

c) Work out the average of the number of eggs collected in the last four days. **(3 marks)**

Last four days
Thursday, Friday, Saturday and Sunday.

Average = Sum of all items / Number of all items

Average = $\frac{90 + 80 + 160 + 80}{4}$ M1

Average = $\frac{140 + 160 + 80}{4}$ ✓

Average = $\frac{380}{4}$ B1

Average = 95 A1

29. a) The median of five consecutive odd numbers is 27. If the first number is k, work out the value of k. **(2 marks)**

1st no	2nd no	3rd no	4th no	5th no	Median
K	K+2	K+4	K+6	K+8	27

Median = K+4

K+4 = 27

K+4−4 = 27−4

K = 23

b) The temperature at night fell from 5°C to −25°C. Calculate the temperature fall. **(2 marks)**

Temperature fall = Final Reading − Initial Reading.

Temperature fall = −25°C − 5°C

Temperature fall = −30°C

30. Jesca, Jacinta and Joan shared some books in such a way that Jesca got 9 books. Jacinta got 6 books and Joan got 40% of the total books shared. **(3 marks)**

a) What percentage of books did Jacinta get?

(6 + 9) books

15 books

100% − 40% = 60%

$\frac{2}{5} \times 60\% = (2 \times 12)\% = 24\%$

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

$15 \div \frac{60}{100}$

$15 \times \frac{100}{60}$

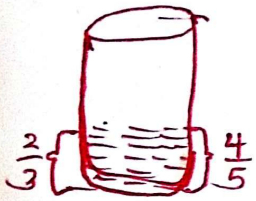
$\frac{5}{5} \times \frac{5}{100}$

$\frac{60}{1}$

(5 × 5) books

25 books

31. A tank is $\frac{4}{5}$ full of water, when 500 litres of water is drawned, the tank becomes $\frac{2}{3}$ full of water. Calculate the capacity of the tank when full of water. **(4 marks)**



$\frac{4}{5} - \frac{2}{3}$

$\frac{12-10}{15}$ B1

$\frac{2}{15}$ B1

$\frac{2}{15}$ of K = 500litres

OR

500Litres ÷ $\frac{2}{15}$ M1

250

500Litres × $\frac{15}{2}$ ✓

(250 × 15) litres

3750 Litres A1

$\frac{2}{5}$ 5

× 15

125

+ 25

3750

32. A motorist travelled from town **P** to **Q** at a speed of 70km per hour. On the return journey, the motorist travelled at a speed of 50km per hour. The total time taken for the whole journey is 6 hours.

a) Find the distance from town **P** to **Q**. **(3 marks)**

$T = \frac{D}{S} + \frac{D}{S}$ ✓

$6hours = \frac{D}{70km/h} + \frac{D}{50km/h}$ M1

$350 \times 6hours = \frac{5}{350} \times \frac{D}{70km/h} + \frac{D}{50km/h} \times \frac{7}{350}$ B1

$350 \times 6hours = 5D + 7D$ ✓

$350 \times 6hours = \frac{12D}{175}$

$= \frac{350 \times 6hours}{12}$ ✓

$\frac{12D}{12}$

$D = 175km$ A1

b) Calculate the time taken on the return journey. **(2 marks)**

$T = \frac{D}{S}$

$T = \frac{175km}{50km/h}$ M1

3 rem 25

$\frac{+75}{50}$ ✓

$3\frac{25}{50}$ ✓

$3\frac{1}{2}$ hours A1

END