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Surname:	Other Names:
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Mathematics

Practice Papers Set 2

Paper 3 (Calculator)

Foundation Tier

Time: 1 hour 30 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
– use this as a guide as to how much time to spend on each question.

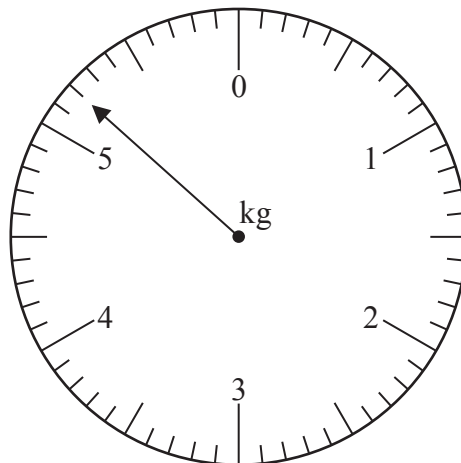
Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1 (a) Work out the number which is exactly halfway between 1.2 and 1.4

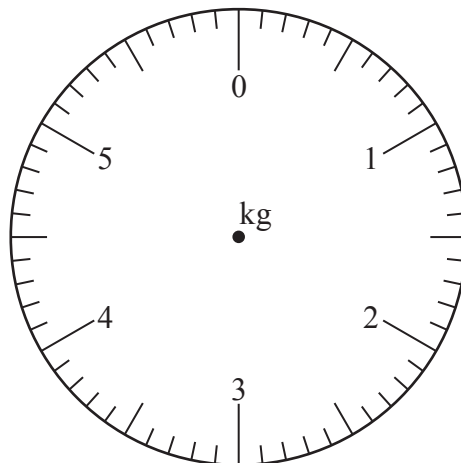
.....
(1)

(b) Here is a scale which shows a weight in kilograms.
What is the reading on the scale?



..... kg
(1)

(c) On the scale below, mark with an arrow a reading of 0.4 kilograms.



(1)

(d) Change 0.4 kilograms to grams.

..... grams
(1)

(Total for Question 1 is 4 marks)

2 (a)

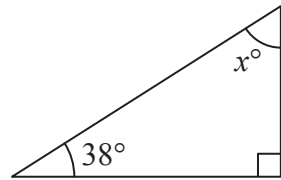


Diagram **NOT**
accurately drawn

The diagram shows a right-angled triangle.

Work out the value of x .

$x = \dots\dots\dots$
(2)

(b)

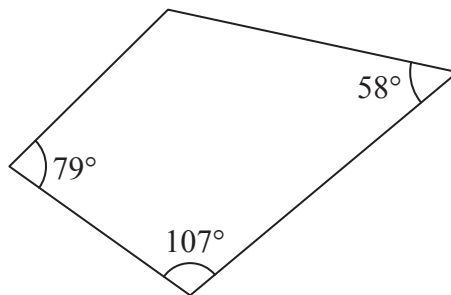


Diagram **NOT**
accurately drawn

Three of the angles of a quadrilateral are 79° , 107° and 58°

Work out the size of the fourth angle of the quadrilateral.

$\dots\dots\dots$
(2)

(Total for Question 2 is 4 marks)

3 (a) Find a fraction which is equivalent to $\frac{3}{5}$

.....
(1)

(b) Write $\frac{3}{5}$ as a decimal.

.....
(1)

(c) Write $\frac{3}{5}$ as a percentage.

..... %
(1)

(d) Mathsville School has 875 students.

$\frac{3}{5}$ of the students are girls.

Work out $\frac{3}{5}$ of 875

.....
(2)

(Total for Question 3 is 5 marks)

4 (a) Use your calculator to work out $\frac{\sqrt{7056}}{0.35 \times 128}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

.....
(2)

(b) Write your answer to part (a) correct to 1 significant figure.

.....
(1)

(Total for Question 4 is 3 marks)

5 Pavel and Katie share some sweets in the ratio 3 : 8
Katie gets 32 sweets.

(a) How many sweets does Pavel get?

.....
(2)

Katie also has a tin of chocolates.
There are 80 chocolates in the tin.
45% of the chocolates have toffee in the middle.

(b) Work out the number of chocolates that have toffee in the middle.

.....
(2)

(Total for Question 5 is 4 marks)

- 6 (a) Write these numbers in order of size.
Start with the smallest number.

$$65\% \qquad \frac{5}{8} \qquad 0.66 \qquad \frac{2}{3} \qquad \frac{3}{5}$$

.....
(3)

- (b) Work out the square root of $\frac{1}{16}$ giving your answer as a fraction.

.....
(1)

- (c) Show that $\frac{11}{12} - \frac{3}{4} = \frac{1}{6}$

.....
(2)

(Total for Question 6 is 6 marks)

- 7 Solve $6(3y + 5) = 39$
Show clear algebraic working.

$y =$

(Total for Question 7 is 3 marks)

8 The pie chart shows information about the use of water by people in a village in Zambia on one day.

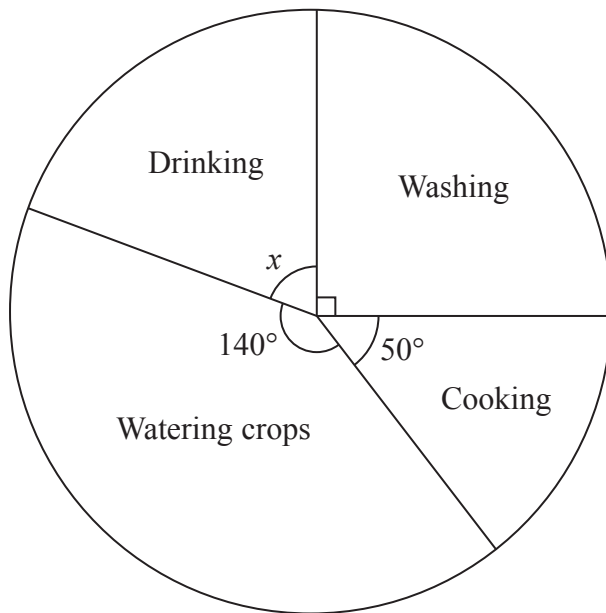


Diagram **NOT** accurately drawn

(a) (i) Calculate the size of angle x .

.....^o

(ii) Explain how you found your answer.

.....
(2)

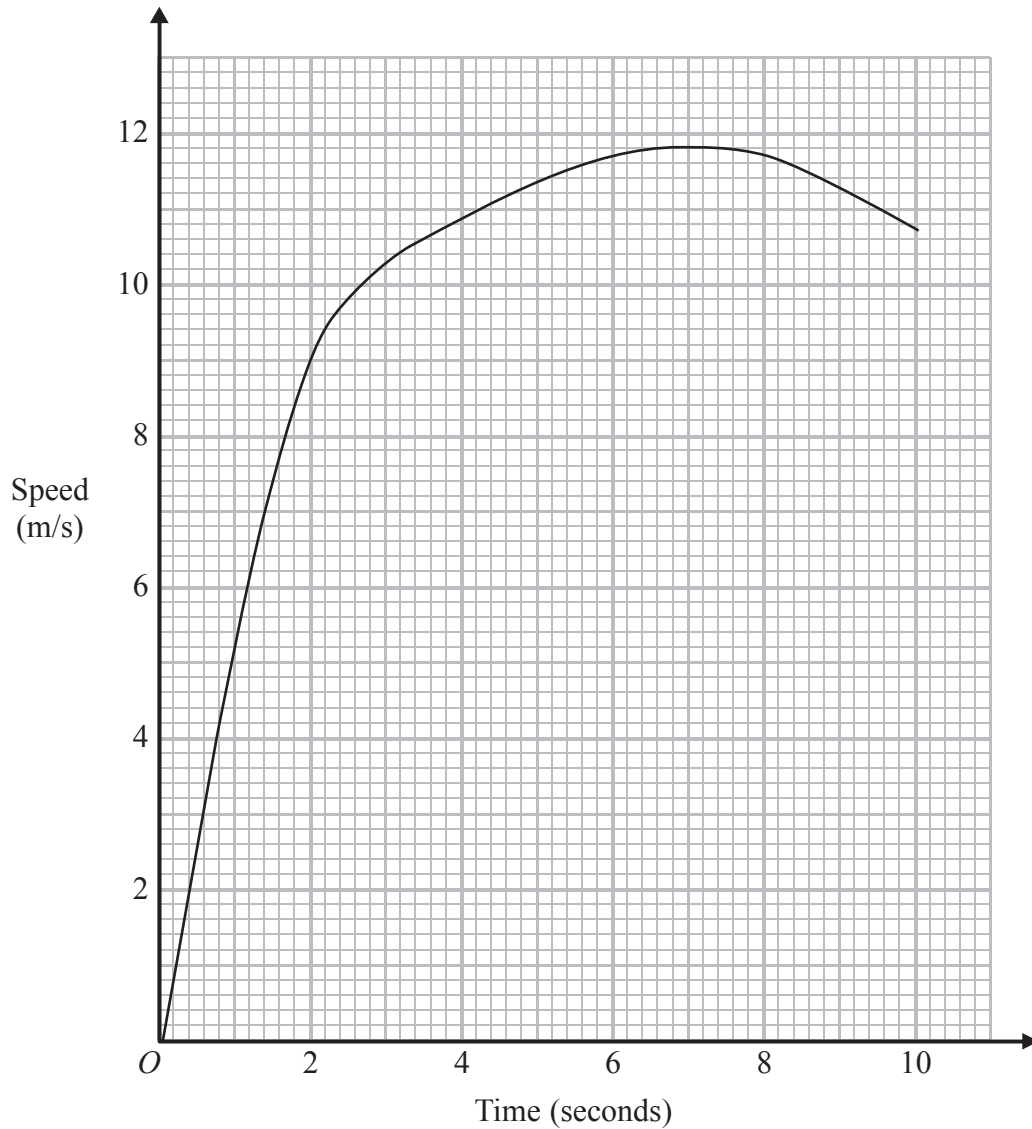
(b) 90 litres of water were used for cooking.
How many litres were used for watering crops?

..... litres
(3)

(Total for Question 8 is 5 marks)

9 Usain runs in a race.

The graph shows his speed, in metres per second (m/s), during the first 10 seconds of the race.



(a) Write down Usain's speed at 2 seconds.

..... m/s
(1)

(b) Write down Usain's greatest speed.

..... m/s
(1)

(c) Write down the time at which Usain's speed was 7 m/s.

..... seconds
(1)

(Total for Question 9 is 3 marks)

10 Here is a right-angled triangle.

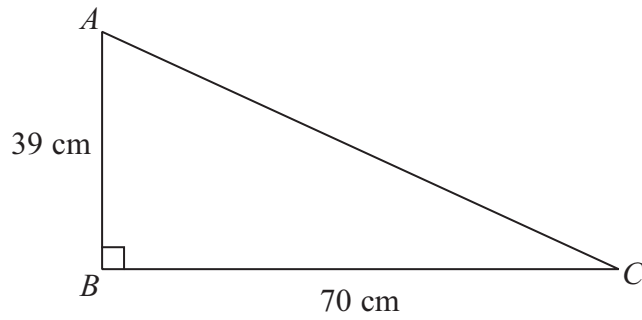


Diagram **NOT**
accurately drawn

Work out the length of AC .
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 10 is 3 marks)

11 Here are the first four terms of an arithmetic sequence.

3

10

17

24

(a) Find, in terms of n , an expression for the n th term of this arithmetic sequence.

.....
(2)

(b) Is 150 a term of this sequence?

You must explain how you get your answer.

.....
(2)

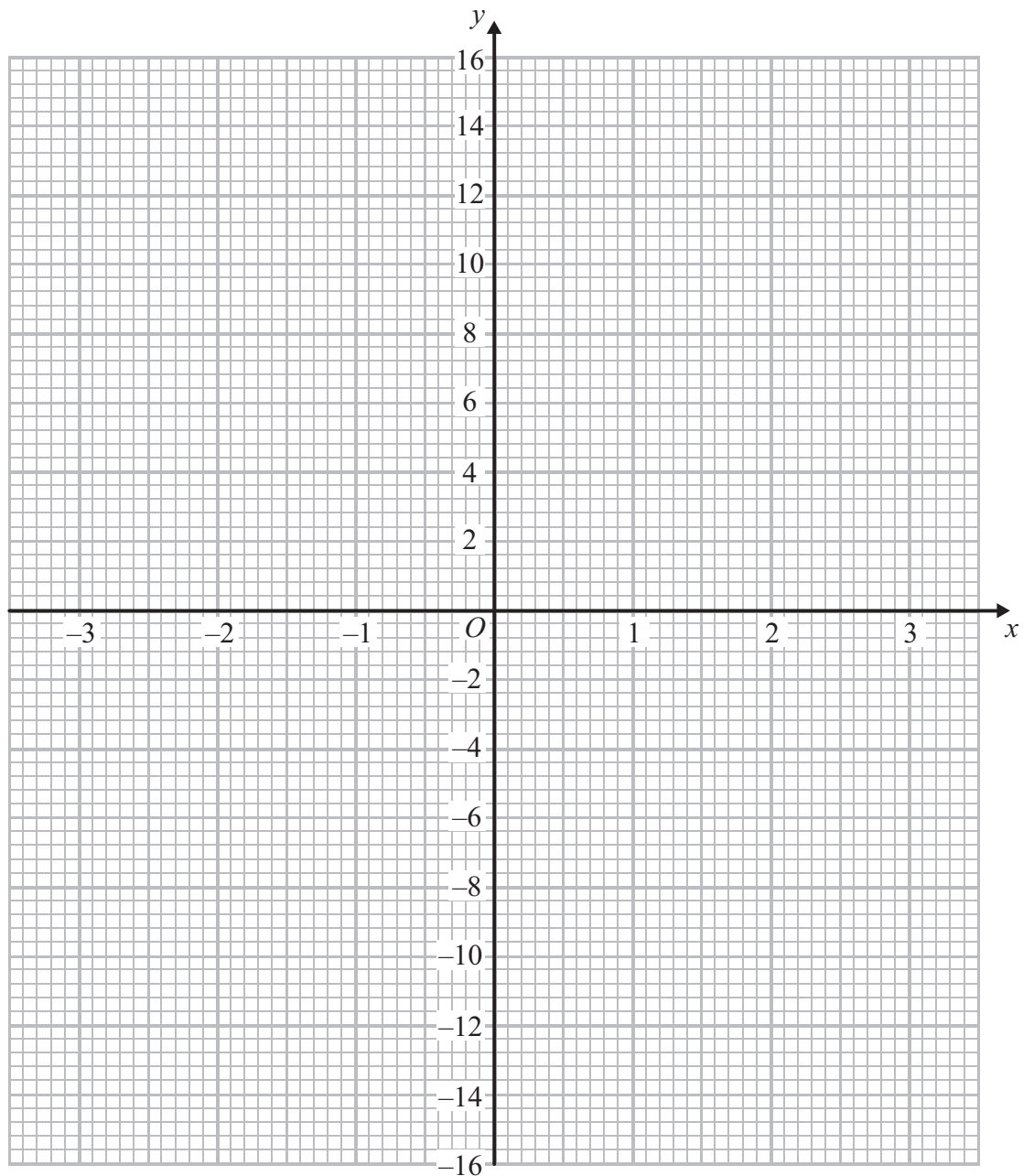
(Total for Question 11 is 4 marks)

12 (a) Complete the table of values for $y = x^3 - 4x$

x	-3	-2	-1	0	1	2	3
y			3	0			15

(2)

(b) On the grid, draw the graph of $y = x^3 - 4x$ from $x = -3$ to $x = 3$



(2)

(Total for Question 12 is 4 marks)

13 Sasha takes a music exam.

The table shows the result that Sasha can get for different percentages in her music exam.

Percentage	Result
50% – 69%	Pass
70% – 84%	Merit
85% – 100%	Distinction

Sasha gets 62 out of 80 in her music exam.

What result does Sasha get?

You must show your working.

.....
(Total for Question 13 is 3 marks)

14 (a) Simplify $x^7 \times x^3$

.....
(1)

(b) Simplify $(m^4)^3$

.....
(1)

(c) Simplify $\frac{36af^8}{12a^5f^2}$

.....
(2)

(Total for Question 14 is 4 marks)

15 Serena bought a car that had a value of \$16 000

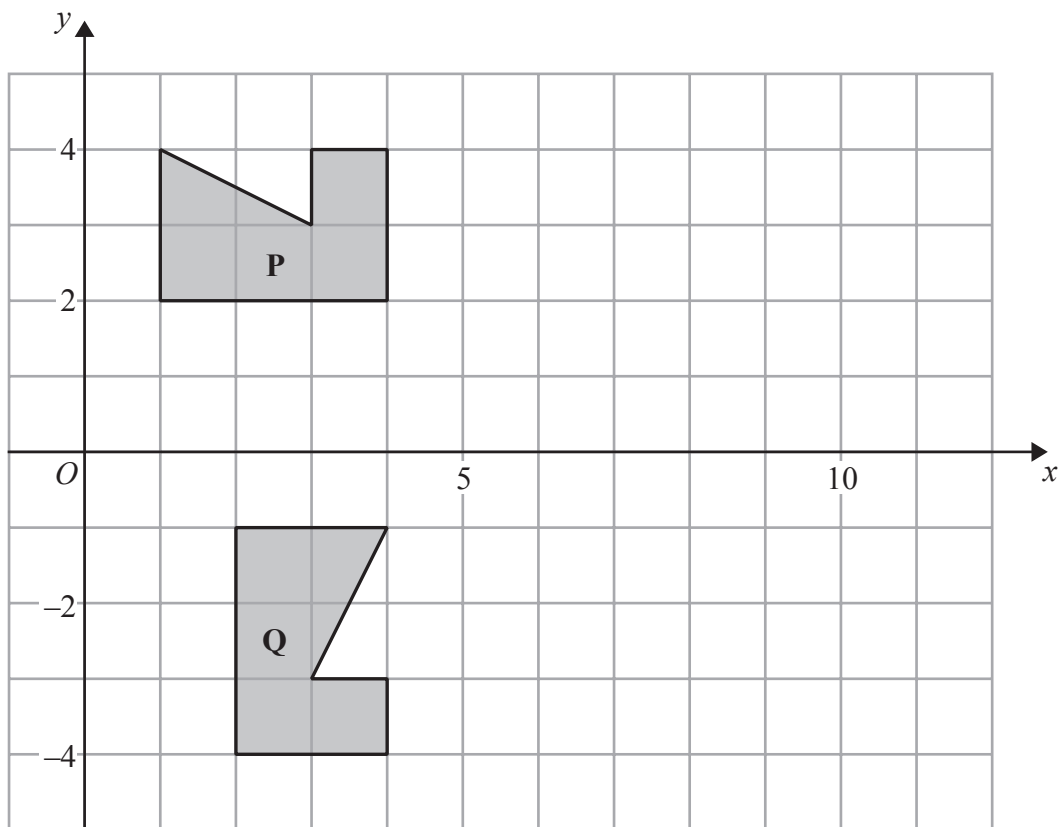
At the end of each year, the value of her car had depreciated by 15%.

Calculate the value of her car at the end of 3 years.

\$

(Total for Question 15 is 3 marks)

16 The diagram shows a shape **P**, and a shape **Q**.



Describe fully the single transformation which maps shape **P** onto shape **Q**.

.....

.....

(Total for Question 16 is 3 marks)

17 A school has 840 pupils and 40 teachers.

- (a) Find the ratio of the number of pupils to the number of teachers.
Give your ratio in the form $n : 1$

..... : 1
(2)

In Year 11 at the school, the ratio of the number of pupils who study Chemistry to the number of pupils who study Physics is 3 : 2

- (b) 105 pupils in Year 11 study Chemistry.
Work out the number of pupils in Year 11 who study Physics.

.....
(2)

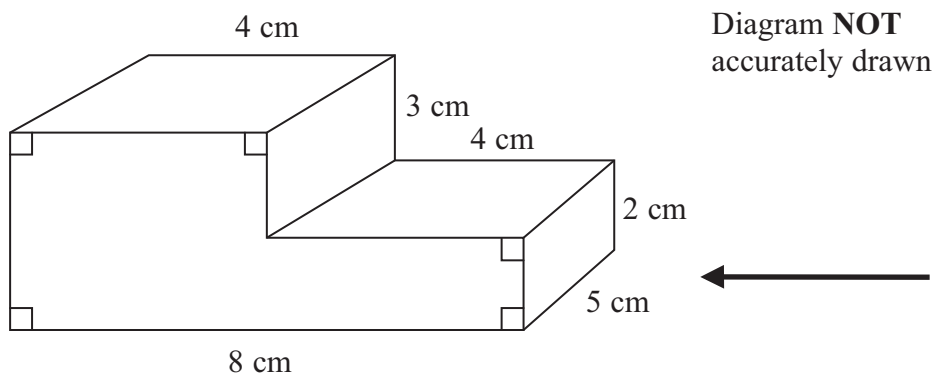
For the 105 pupils who study Chemistry, the ratio of the number of boys to the number of girls is 4 : 3

- (c) Work out the number of girls in Year 11 who study Chemistry.

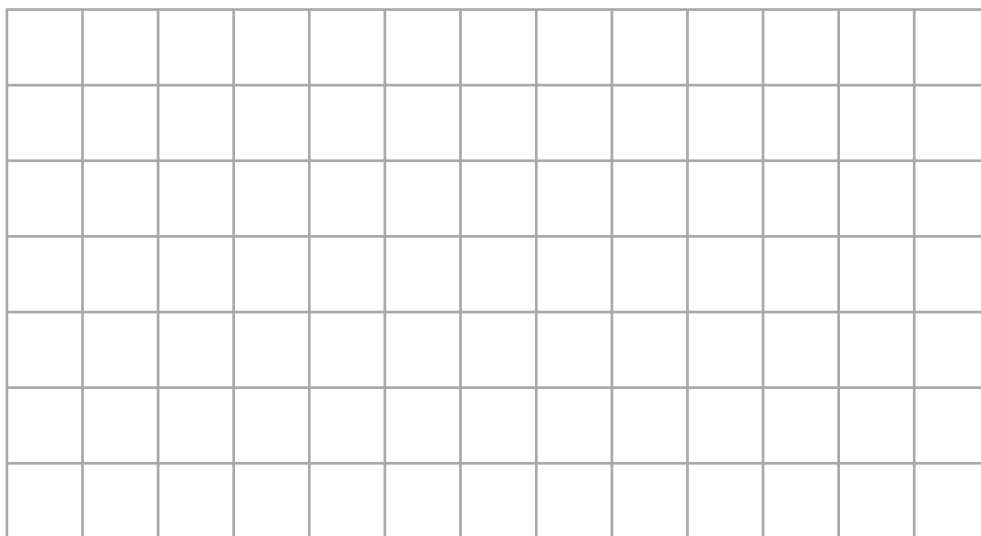
.....
(2)

(Total for Question 17 is 6 marks)

18 The diagram shows a solid prism.



On the centimetre square grid, draw the side elevation of the solid prism from the direction shown by the arrow.



(Total for Question 18 is 2 marks)

19 The table shows the land areas, in km^2 , of four countries.

Country	Land area (km^2)
Ethiopia	1.13×10^6
Algeria	2.38×10^6
Nigeria	9.24×10^5
Kenya	5.83×10^5

(a) Which country has the largest land area?

.....
(1)

(b) Calculate the total land area, in km^2 , of all four countries.
Give your answer in standard form.

..... km^2
(2)

Population density is calculated by the formula

$$\text{Population density} = \text{Population} \div \text{Land area}$$

(c) In one year, the population of Ethiopia was 7.91×10^7
Calculate the population density of Ethiopia for that year.

..... people / km^2
(2)

(Total for Question 19 is 5 marks)

20 In a school of 100 students

42 study Statistics

40 study Mathematics

50 study Physics

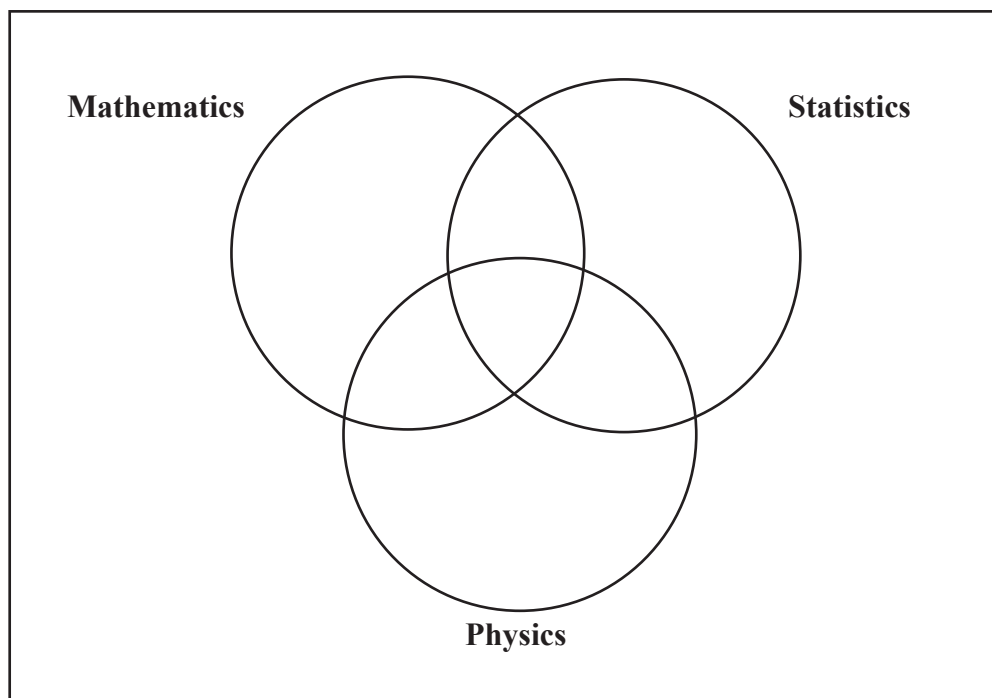
21 study Mathematics and Physics

19 study Statistics and Physics

17 study Statistics and Mathematics

5 study all three

(a) Complete the Venn Diagram.



(4)

One of the students is picked at random.

(b) Find the probability that this student studies only **one** of these subjects.

.....
(2)

(Total for Question 20 is 6 marks)