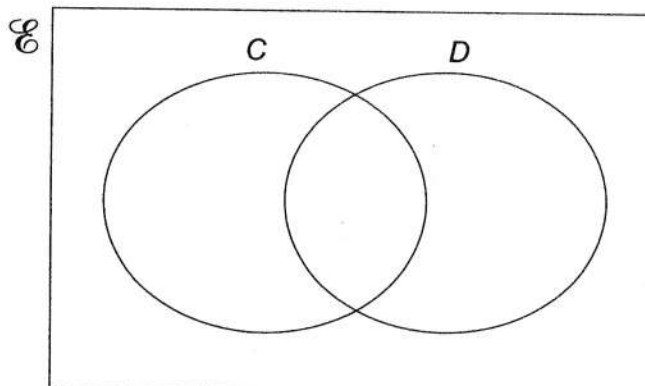


- 1 There are 52 students in a club.
 30 students play chess (C),
 18 students play drama (D),
 22 students play chess but not drama.



- (a) Complete the Venn diagram.

[3]

- (b) Find the number of students who play drama only.

..... [1]

- (c) A student is chosen at random from the group.

Find the probability that the student plays either chess or drama.

..... [2]

2 (a) Evaluate.

$$\sqrt{\frac{5460}{30} - (1.573)^2}$$

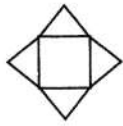
..... [2]

(b) Without using a calculator, simplify.
Clearly show your working.

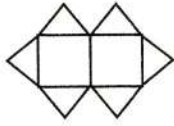
$$11 \sqrt{\frac{5^{36} + 5^{34}}{130}}$$

.....[3]

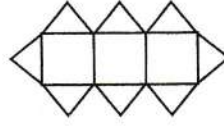
- 3 The diagram shows patterns formed using triangles and squares.



Pattern 1



Pattern 2



Pattern 3

Pattern 4

- (a) Draw pattern 4.

[1]

- (b) Complete the table.

Pattern	1	2	3	4	...	20
Number of squares	1	2	3		...	
Number of triangles	4	6	8	10	...	
Total number of squares and triangles	5	8	11		...	

[3]

- (c) Find, in its simplest form,

- (i) the n^{th} term for the total number of triangles and squares,

..... [2]

- (ii) the $(n + 13)^{\text{th}}$ term for the total number of triangles and squares.

..... [2]

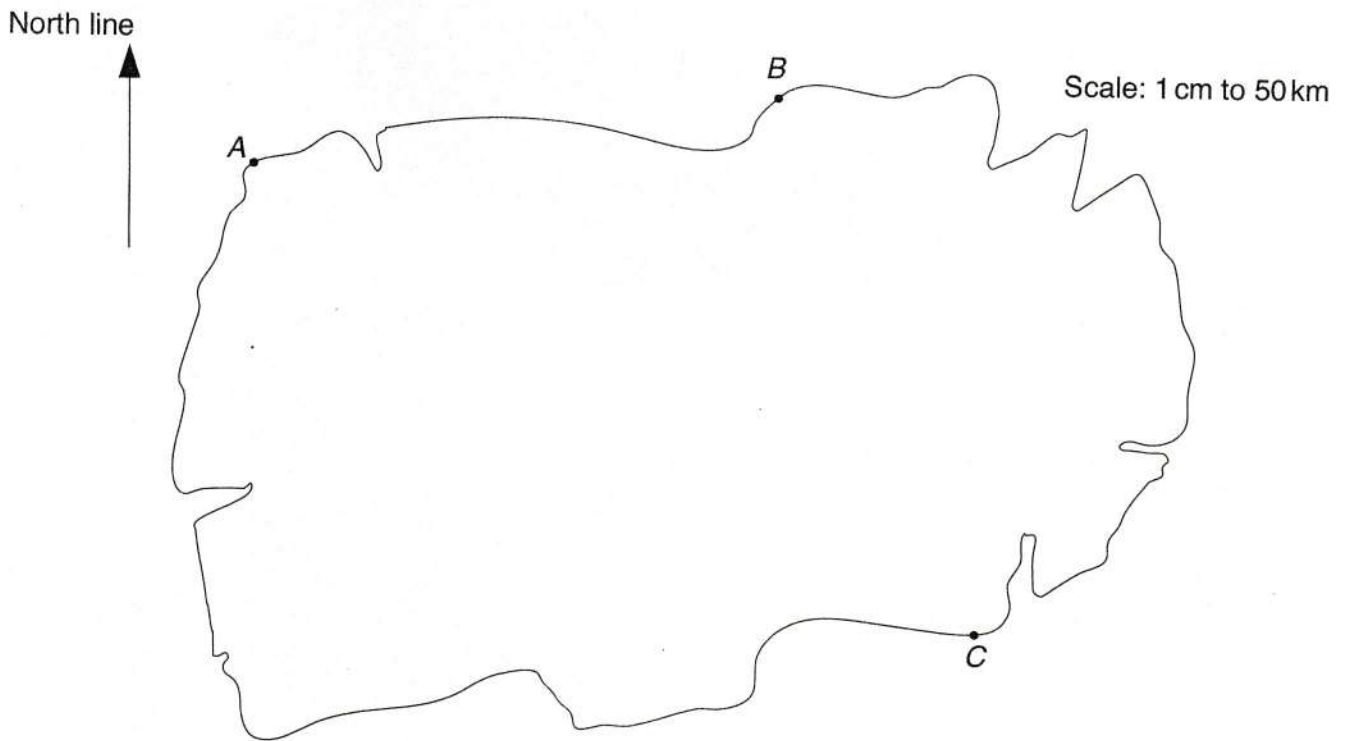
- (d) There are 188 triangles in one pattern.

Find the total number of triangles and squares in this pattern.

..... [3]

- 4 The diagram shows a map of island drawn to the scale shown.

A , B and C are points at the edges of the island.



- (a) Find the shortest actual distance of A from C .

.....km [2]

- (b) Measure the bearing of B from C .

.....° [3]

- (c) A tower T is to be built such that it is equidistant

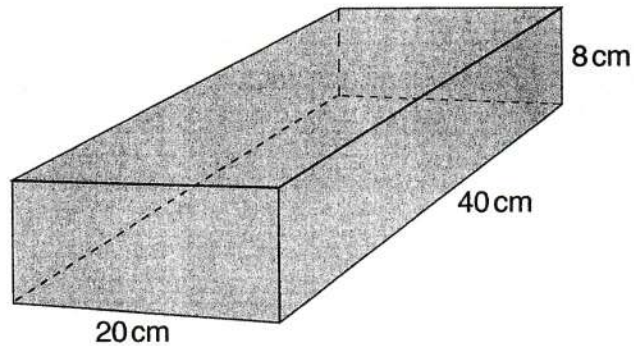
I from AB and BC ,

II from A and C .

Construct and mark, with T , the position of the tower.

[5]

- 5 The diagram shows an open cuboid with length 40 cm, width 20 cm and height 8 cm. The cuboid is completely filled with water.



NOT TO
SCALE

(a) Calculate

- (i) the volume of water in the cuboid,

..... cm^3 [2]

- (ii) the total surface area of the open cuboid in contact with water.

..... cm^2 [3]

- (b) All the water from the cuboid is poured into the cylinder of radius 12 cm.

Calculate the height of the water in the cylinder.

..... cm [2]

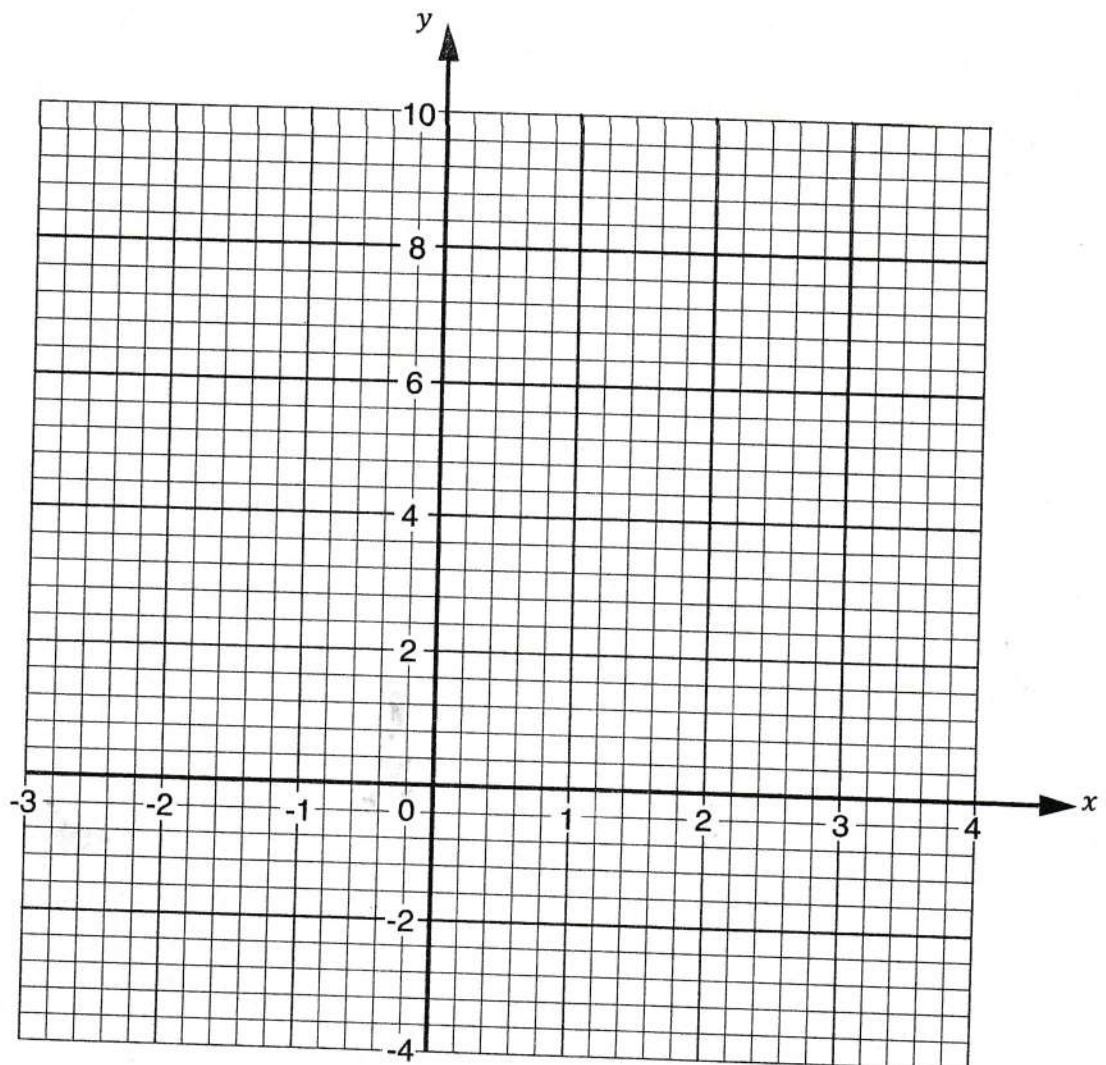
- 6 (a) (i) Complete the table of values for $y = x^2 - x - 3$.

x	-3	-2	-1	0	1	2	3	4
y	9		-1	-3	-3	-1	3	

- (ii) Draw the graph of $y = x^2 - x - 3$ on the grid for $-3 \leq x \leq 4$.

[2]

[4]



- (b) Write the equation of the axis of the symmetry of the graph.

..... [1]

7 A square plot **A** has side x m.

A square plot **B** has side 2m longer than plot **A**.

(a) Find, in terms of x , an expression for

(i) the perimeter of plot **A**,

.....[1]

(ii) the area of plot **B**.

.....[1]

(b) The total area of the two plots is 130 m^2 .

Form an equation, in terms of x , for the total area,
and show that it reduces to $x^2 + 2x - 63 = 0$.

[3]

(c) Solve the equation $x^2 + 2x - 63 = 0$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [3]

(d) The cost of fencing is M80 per metre.

Find the cost of fencing plot **A**.

M.....[2]

- 8** A bus left Maseru to Quthing carrying 80 passengers.
65 passengers are adults and the rest are children.

(a) Write, in its simplest form, the ratio of Adults : Children.

..... : [2]

- (b) When it reached Mafeteng bus stop, 20% of the adults and $\frac{1}{3}$ of the children left the bus.

Calculate the number of passengers who remained in the bus.

..... [3]

- (c) Some passengers got onto the bus from Mafeteng to Quthing and the new total number of passengers is 70.

The ratio of Men : Women : Children is now 5 : 3 : 2.

Calculate the number of children in the bus.

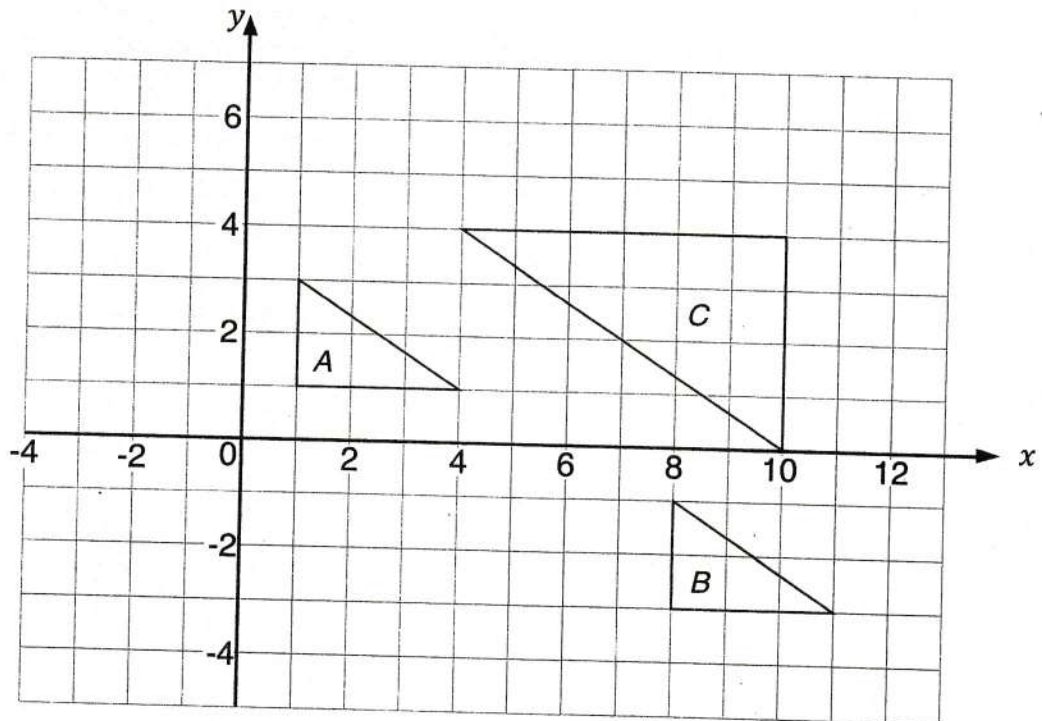
..... [2]

- 9 Lindiwe invested the same amount of money for 2 years, in company **A** and company **B**. Company **A** offers compound interest and company **B** offers simple interest per annum. Both companies offer 10% interest per annum.

Calculate the amount invested in each company if the compound interest exceeds simple interest by M120.

M..... [4]

10 The diagram shows triangles A , B and C on the grid.



(a) Describe fully, a single transformation which maps

(i) A onto B ,

.....
 [2]

(ii) C onto A .

.....

 [3]

(b) Reflect triangle A in the line $y = -x$.

[2]

- 11** The table shows a summary of the types of mode of transport for 45 students in a class.

Mode of transport	Frequency	Sector angle, in degree ($^{\circ}$)
Car		72
Taxi	6	48
Bus		176
Bicycle	8	64

- (a)** Complete the table.

[3]

- (b)** A student is chosen at random from the class.

Calculate the probability that the student uses

- (i)** taxi,

..... [1]

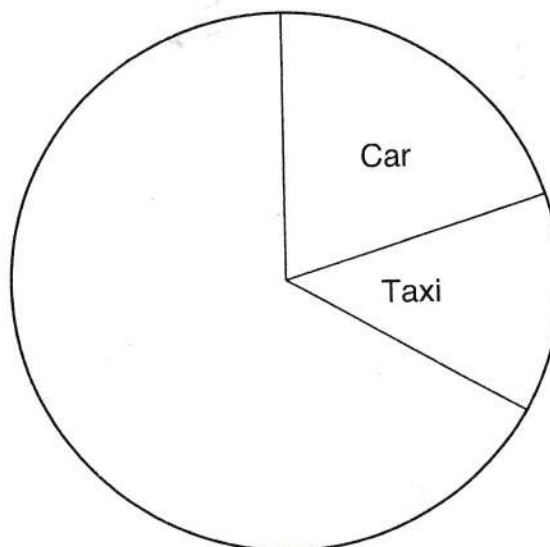
- (ii)** bicycle or a car.

..... [2]

- (c)** The pie chart represents part of the information from the table.

Complete the pie chart and label the sectors.

[2]



12 (a) $P = \frac{\sqrt[3]{a}}{2}$.

(i) Find the value of P when $a = 12$.

(ii) Make a the subject of the formula.

$$P = \dots\dots\dots [1]$$

(b) Solve the equation.

$$\frac{x-3}{6} - \frac{x-4}{8} = 2$$

$$a = \dots\dots\dots [2]$$

(c) Solve the simultaneous equations.

$$3x - 6y = 24$$

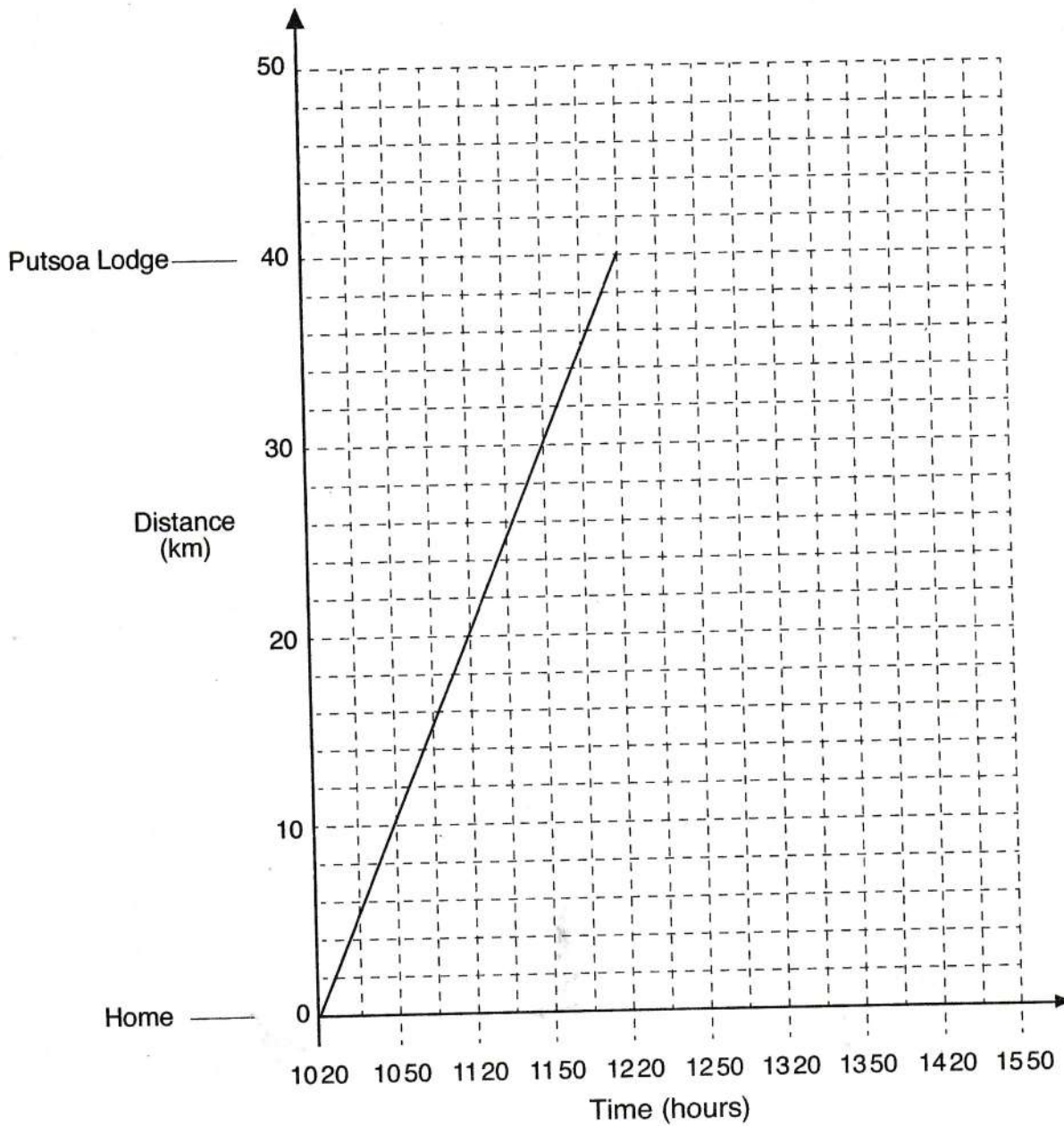
$$2x + y = 1$$

$$x = \dots\dots\dots [3]$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [3]$$

- 13** Sampu cycles from home to Putsoa Lodge.
The distance-time graph represents his journey.



- (a) Find
(i) the distance Sampu cycled after 1 hour and 30 minutes.

.....km [1]

- (ii) the time at which Sampu had covered 15 km.

..... [1]

- (b) Calculate Sampu's average speed from home to Putsoa Lodge.
Give your answer in kilometres per hour.

..... km/h [3]

- (c) Sampu stayed at Putsoa Lodge for 45 minutes.
He then cycled back home at the constant speed of 32 km/h.

Complete the travel journey for Sampu on the grid.

[2]

- (d) Change 32 km/h to metres per second (m/s).

.....m/s [2]

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