



Ratios (inc Scales)

Question Paper 4

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Ratios (inc Scales)
Booklet	Question Paper 4

Time Allowed: 80 minutes

Score: /66

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

- 1 Vreni took part in a charity walk.
She walked a distance of 20 kilometres.
- (a)** She raised money at a rate of \$12.50 for each kilometre.
- (i)** How much money did she raise by walking the 20 kilometres? [1]
- (ii)** The money she raised in **part (a)(i)** was $\frac{5}{52}$ of the total money raised.
Work out the total money raised. [2]
- (iii)** In the previous year the total money raised was \$2450.
Calculate the percentage increase on the previous year's total. [2]
- (b)** Part of the 20 kilometres was on a road and the rest was on a footpath.
The ratio road distance : footpath distance was 3:2.
- (i)** Work out the road distance. [2]
- (ii)** Vreni walked along the road at 3 km/h and along the footpath at 2.5 km/h.
How long, in hours and minutes, did Vreni take to walk the 20 kilometres? [2]
- (iii)** Work out Vreni's average speed. [1]
- (iv)** Vreni started at 08 55. At what time did she finish? [1]
- (c)** On a map, the distance of 20 kilometres was represented by a length of 80 centimetres.
The scale of the map was 1 : n .
Calculate the value of n . [2]

2 (a) The scale of a map is 1:20 000 000.

On the map, the distance between Cairo and Addis Ababa is 12 cm.

(i) Calculate the distance, in kilometres, between Cairo and Addis Ababa. [2]

(ii) On the map the area of a desert region is 13 square centimetres.

Calculate the actual area of this desert region, in square kilometres. [2]

(b) (i) The actual distance between Cairo and Khartoum is 1580 km.

On a different map this distance is represented by 31.6 cm.

Calculate, in the form $1:n$, the scale of this map. [2]

(ii) A plane flies the 1580 km from Cairo to Khartoum.

It departs from Cairo at 11 55 and arrives in Khartoum at 14 03.

Calculate the average speed of the plane, in kilometres per hour. [4]

- 3 A company makes two models of television.
Model *A* has a rectangular screen that measures 44 cm by 32 cm.
Model *B* has a larger screen with these measurements increased in the ratio 5:4.

(a) Work out the measurements of the larger screen.

Answer(a) cm by cm [2]

(b) Find the **fraction** $\frac{\text{model } A \text{ screen area}}{\text{model } B \text{ screen area}}$ in its simplest form.

Answer(b) [1]

- 4 Hassan sells fruit and vegetables at the market.

(a) The mass of fruit and vegetables he sells is in the ratio
fruit : vegetables = 5 : 7.

Hassan sells 1.33 **tonnes** of vegetables.

How many **kilograms** of fruit does he sell? [3]

(b) The amount of money Hassan receives from selling fruit and vegetables is in the ratio
fruit : vegetables = 9 : 8.

Hassan receives a **total** of \$765 from selling fruit and vegetables.

Calculate how much Hassan receives from selling fruit. [2]

(c) Calculate the average price of Hassan's fruit, in dollars per kilogram. [2]

(d) (i) Hassan sells oranges for \$0.35 per kilogram.

He reduces this price by 40%.

Calculate the new price per kilogram. [2]

(ii) The price of \$0.35 per kilogram of oranges is an increase of 25% on the previous day's price.

Calculate the previous day's price. [2]

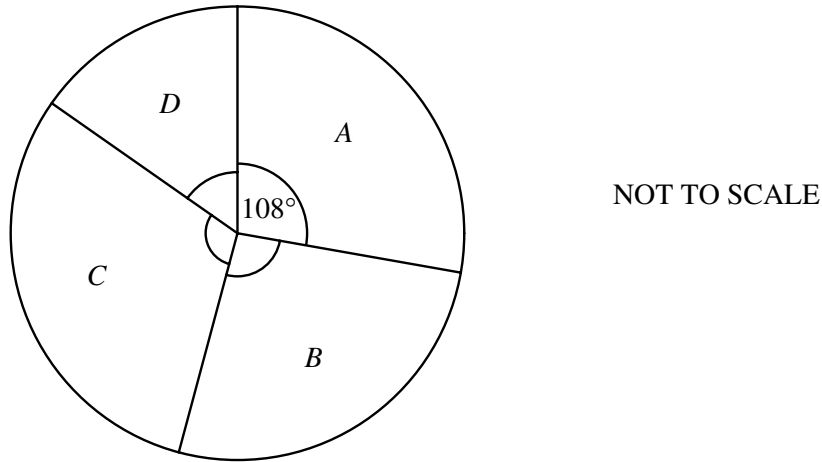
- 5 (a) The technical data of a car includes the following information.

Type of road	Petrol used per 100 km
Main roads	9.2 litres
Other roads	8.0 litres

- (i) How much petrol is used on a journey of 350 km on a main road? [1]
- (ii) On other roads, how far can the car travel on 44 litres of petrol? [1]
- (iii) A journey consists of 200 km on a main road and 160 km on other roads.
- (a) How much petrol is used? [2]
- (b) Work out the amount of petrol used per 100 km of this journey. [1]
- (b) A model of a car has a scale of 1 : 25.
- (i) The length of the car is 3.95 m.
Calculate the length of the model.
Give your answer in centimetres. [3]
- (ii) The painted surface area of the model is 123 cm².
Calculate the painted surface area of the car, giving your answer in square centimetres. [2]
- (iii) The size of the luggage space of the car is 250 litres.
Calculate the size of the luggage space of the model, giving your answer in millilitres. [3]
- 6 The ratios of teachers : male students : female students in a school are 2 : 17 : 18.
The total number of **students** is 665.
Find the number of **teachers**.

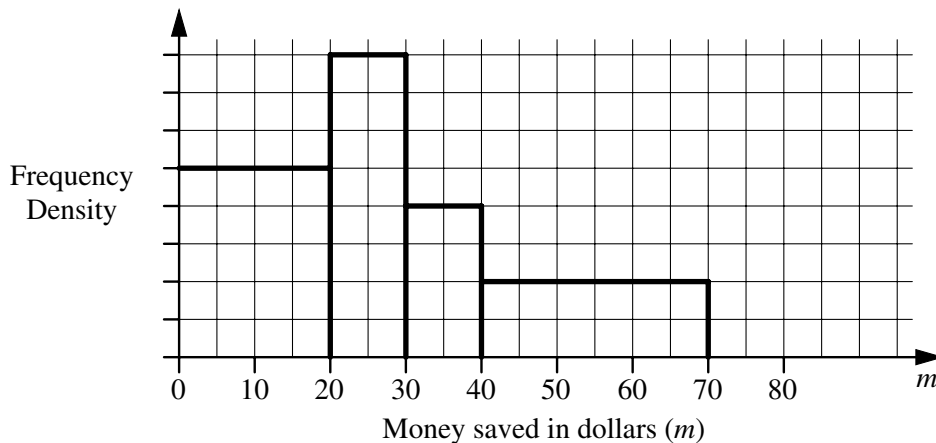
Answer [2]

- 7 (a) A group of students sat an examination. Each student got one of the grades A , B , C or D . The pie chart shows these results.



36 students got grade A , shown by an angle of 108° .

- (i) Calculate the total number of students who sat the examination. [2]
 - (ii) How many students did **not** get grade A ? [1]
 - (iii) The ratio of the number of students getting grades B , C or D is $4 : 5 : 3$. Find the number of students getting each grade. [3]
 - (iv) Work out the angles in the pie chart for grades B , C and D . [3]
 - (v) Find the ratio, **in its lowest terms**, the number of students with grade A : the number of students with grade B . [1]
- (b) A group of children were asked how much money they had saved. The histogram and table show the results.



Money saved (\$ m)	$0 < m \leq 20$	$20 < m \leq 30$	$30 < m \leq 40$	$40 < m \leq 70$
Frequency	25	p	q	r