Number
Difficulty: Medium

Question Paper 1

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Number
Paper	Paper 4
Difficulty	Medium
Booklet	Question Paper 1

Time allowed: **75 minutes**

Score: **/64**

Percentage: **/100**

Grade Boundaries:

CIE IGCSE Maths (0580)

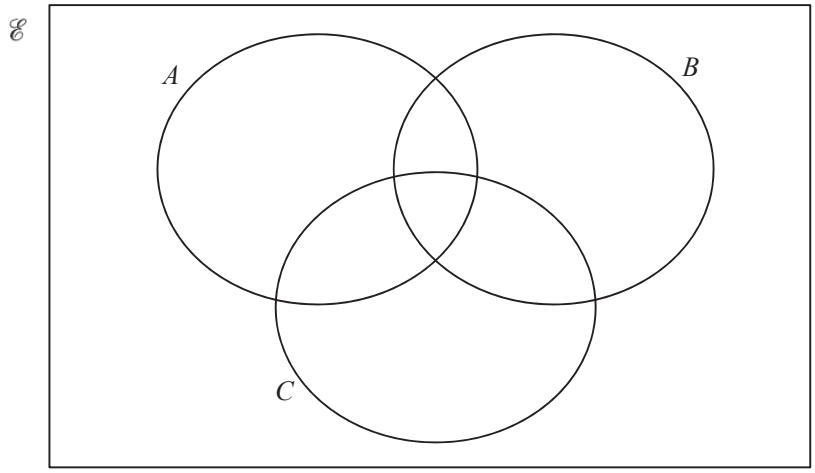
A*	A	B	C	D
>83%	67%	51%	41%	31%

CIE IGCSE Maths (0980)

9	8	7	6	5	4
>95%	87%	80%	69%	58%	46%

$\mathscr{E} = \{21, 22, 23, 24, 25, 26, 27, 28, 29, 30\}$
$A = \{ x : x \text{ is a multiple of } 3\}$
$B = \{ x : x \text{ is prime}\}$
$C = \{ x : x \text{ G } 25\}$

(a) Complete the Venn diagram.



[4]

(b) Use set notation to complete the statements.

(i) 26 ..... B [1]

(ii) $A \cap B =$ ..... [1]

(c) List the elements of $B \cup (C \cap A)$. [2]

(d) Find

(i) n(C), [1]

(ii) n (B ' $\cup$ ($B \cap C$)) [1]

(e) $A \cap C$ is a subset of $A \cup C$.

Complete this statement using set notation. [1]

(a) (i) Divide \$105 in the ratio 4 : 3. [2]

(ii) Increase \$105 by 12%. [2]

(iii) In a sale the original price of a jacket is reduced by 16% to \$105.

Calculate the original price of the jacket. [3]

(b) Jakob invests \$500 at a rate of 2% per year compound interest.
Claudia invests \$500 at a rate of 2.5% per year simple interest.

Calculate the difference between these two investments after 30 years.
Give your answer in dollars correct to the nearest cent. [6]

(c) Michel invests $\$P$ at a rate of 3.8% per year compound interest.
After 30 years the value of this investment is \$1469.

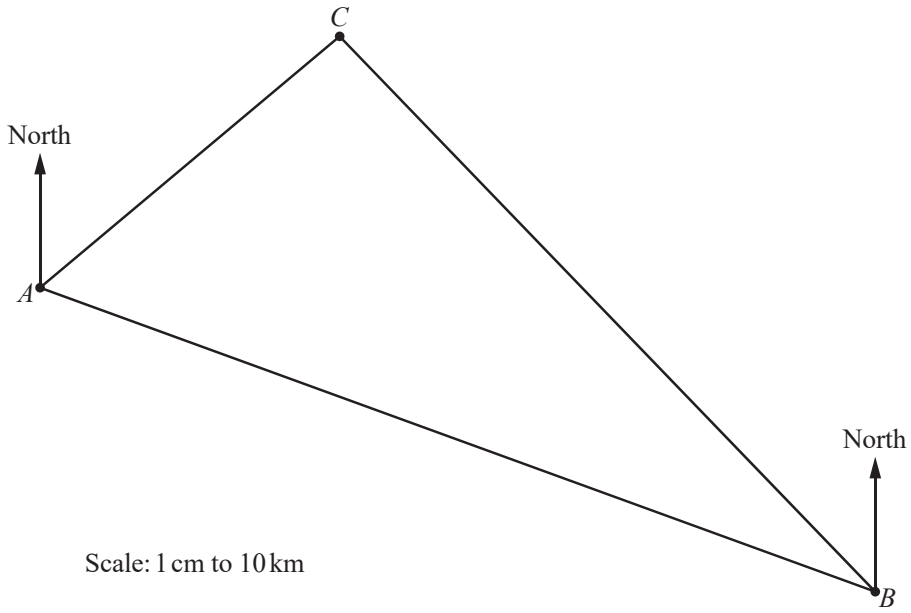
Calculate the value of P. [3]

(d) The population of a city increases exponentially at a rate of x% **every 5 years**.
In 1960 the population was 60 100.
In 2015 the population was 120 150.

Calculate the value of x. [3]

Question 3

The scale drawing shows the positions of three towns A, B and C on a map.
The scale of the map is 1 centimetre represents 10 kilometres.



(a) Find the actual distance AB. [1]

(b) Measure the bearing of A from B. [1]

(c) Write the scale 1 cm to 10 km in the form $1 : n$. [1]

(d) On the scale drawing, a lake inside the national park has area $0.4\,\text{cm}^2$.

Calculate the actual area of the lake. [2]

Question 4

(a) Kolyan buys water for $2.60 .
He also buys biscuits.

(i) The ratio cost of biscuits : cost of water = 3 : 2.

Find the cost of the biscuits. [2]

(ii) Kolyan has $9 to spend.

Work out the total amount Kolyan spends on water and biscuits as a fraction of the $9.
Give your answer in its lowest terms. [2]

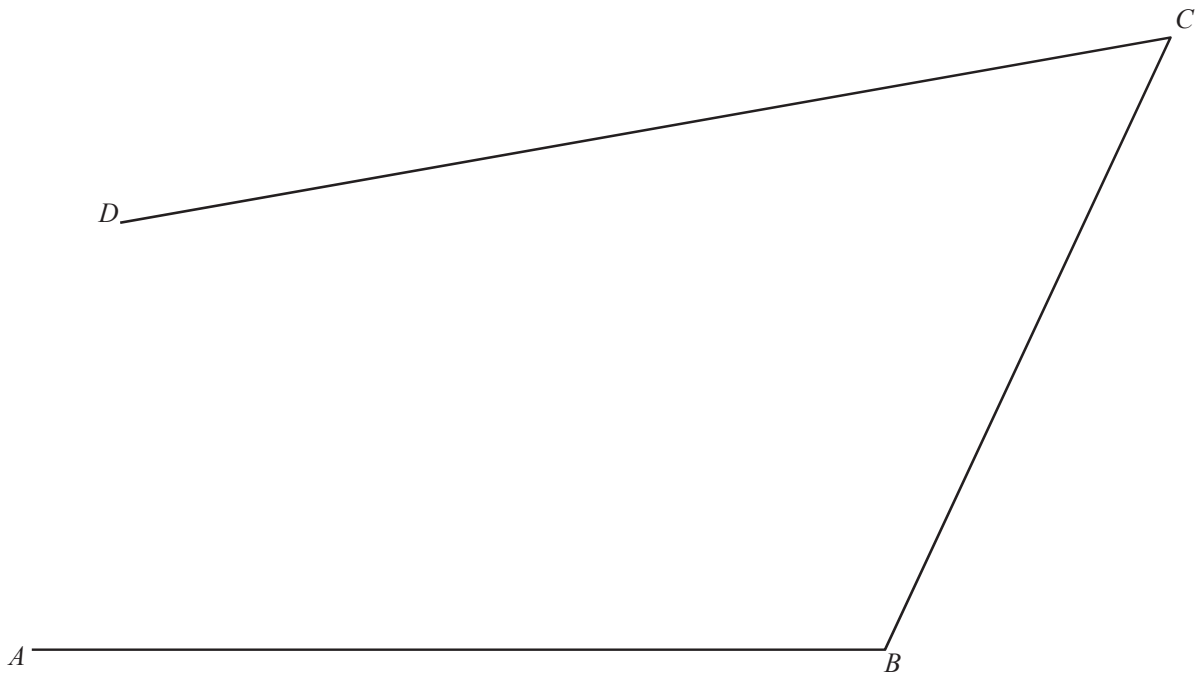
(iii) The $9 is 62.5% less than the amount Kolyan had to spend last week.

Calculate the amount Kolyan had to spend last week. [3]

(b) Priya buys a bicycle for $250.
Each year the value of the bicycle decreases by 8% of its value at the beginning of that year.

Calculate the value of Priya's bicycle after 10 years.
Give your answer correct to the nearest dollar. [3]

The diagram is a scale drawing of three straight roads, AB, BC and CD.
The scale is 1 : 5000.



Scale 1 : 5000

Find the actual length of the road BC.
Give your answer in metres. [2]

Question 6

(a) (i) Eduardo invests $640 at a rate of 2% per year compound interest.

Show that, at the end of 6 years, Eduardo has $721, correct to the nearest dollar. [2]

(ii) Manuela also invests $640.
At the end of 4 years, Manuela has $721.

Find the yearly compound interest rate.

[4]

(b) Carlos buys a motor scooter for $1200.
Each year the value of the scooter decreases by 10% of its value at the beginning of that year.

Find the value of the scooter after 3 years. [2]

(a) x is an integer.

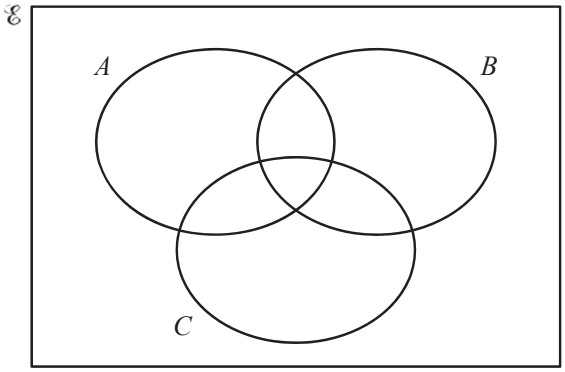
$\mathscr{E} = \{x: 1 \leqslant x \leqslant 10\}$

$A = \{x: x \text{ is a factor of } 12\}$

$B = \{x: x \text{ is an odd number}\}$

$C = \{x: x \text{ is a prime number}\}$

(i) Complete the Venn diagram to show this information.



[3]

(ii) Use set notation to complete each statement.

6 ..... A

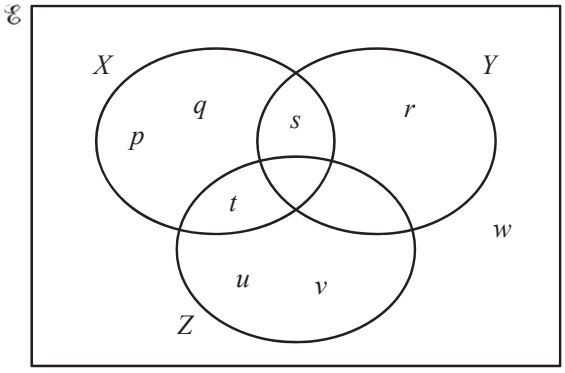
$A \cap B \cap C =$ .....

$A \cap A' =$ .....

[3]

(iii) Find n(B). [1]

(b)



(i) Use set notation to complete the statement.

$\{u, v\}$ ..... Z [1]

(ii) Shade $X \cap (Z \cup Y)'$. [1]