

Answer ALL TWENTY THREE questions.

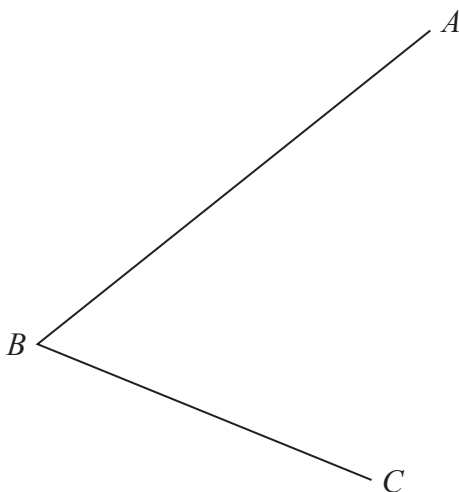
Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Show that  $3\frac{3}{4} \times \frac{7}{9} = 2\frac{11}{12}$

(Total for Question 1 is 3 marks)

- 2 Using ruler and compasses only, construct the bisector of angle  $ABC$ .  
You must show all your construction lines.



(Total for Question 2 is 2 marks)



3 (a) Simplify  $h^7 \times h^2$

.....  
(1)

$$G = c^2 - 4c$$

(b) Find the value of  $G$  when  $c = -5$

$G =$  .....  
(2)

(c) Solve  $\frac{5x - 3}{4} = 2x + 3$

Show clear algebraic working.

$x =$  .....  
(3)

(Total for Question 3 is 6 marks)



- 4 The table gives information about the length of time, in minutes, that each of 60 students took to travel to school on Monday.

Length of time ( $t$ minutes)	Frequency
$0 < t \leq 10$	4
$10 < t \leq 20$	10
$20 < t \leq 30$	15
$30 < t \leq 40$	25
$40 < t \leq 50$	6

- (a) Write down the modal class interval.

.....  
(1)

- (b) Work out an estimate for the mean length of time taken by these 60 students to travel to school on Monday.  
Give your answer correct to one decimal place.

..... minutes  
(4)

(Total for Question 4 is 5 marks)



- 5 In 2017, the population of a village was 7500  
In 2019, the population of the village was 8265

(a) Work out the percentage increase in the population of the village from 2017 to 2019

..... %  
(3)

In a sale, normal prices are reduced by 30%  
The sale price of a T-shirt was 31.50 euros.

(b) Work out the normal price of the T-shirt.

..... euros  
(3)

(Total for Question 5 is 6 marks)



- 6 Point  $A$  has coordinates  $(-3, 11)$   
Point  $B$  has coordinates  $(47, b)$   
The midpoint of  $AB$  has coordinates  $(a, -19)$

Find the value of  $a$  and the value of  $b$ .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots$$

**(Total for Question 6 is 2 marks)**

- 7 Pedro drove from Toulouse to Montpellier in 2 hours 42 minutes.  
He drove at an average speed of 90 km/hour.

Janine drove from Toulouse to Montpellier along the same route as Pedro.  
The journey took her 3 hours.

Work out Janine's average speed for the journey.

..... km/hour

**(Total for Question 7 is 4 marks)**



- 8 Harold bought an antique clock for £1200  
The clock increased in value by 8% per year.

Find the value of the clock exactly 3 years after Harold bought the clock.  
Give your answer correct to the nearest £.

£.....

(Total for Question 8 is 3 marks)

- 9 A box is put on a horizontal table.

The face of the box in contact with the table is a square of side 1.5 metres.  
The pressure on the table due to the box is 34.8 newtons/m<sup>2</sup>

Work out the force exerted by the box on the table.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

..... newtons

(Total for Question 9 is 3 marks)



10 Alex makes 80 cakes to sell.

He makes chocolate cakes, lemon cakes and fruit cakes where

$$\begin{array}{l} \text{number of} \\ \text{chocolate cakes} \end{array} : \begin{array}{l} \text{number of} \\ \text{lemon cakes} \end{array} : \begin{array}{l} \text{number of} \\ \text{fruit cakes} \end{array} = 3 : 2 : 5$$

Alex sells

all of the chocolate cakes

$\frac{3}{4}$  of the lemon cakes

$\frac{7}{8}$  of the fruit cakes

The profit he makes on each cake he sells is shown in the table.

Type of cake	Profit per cake he sells
chocolate	£2.00
lemon	£1.70
fruit	£2.40

Work out the total profit that Alex makes from the cakes he sells.

£.....

(Total for Question 10 is 5 marks)

