

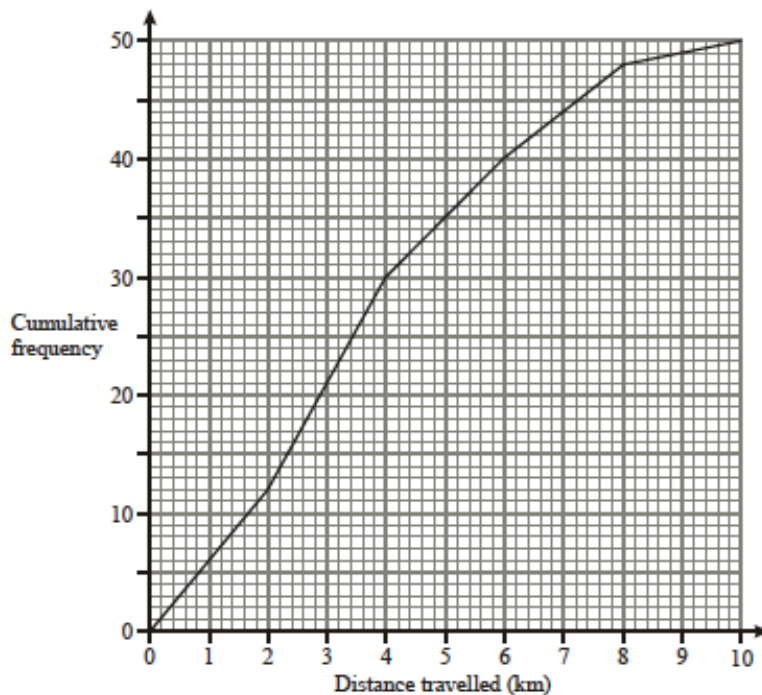
## Revision F4 (All topics) A [49]

1.

The table shows the distances travelled to school by 50 pupils living in a town.

Distance travelled, $d$ (km)	Frequency
$0 < d \leq 2$	12
$2 < d \leq 4$	18
$4 < d \leq 6$	10
$6 < d \leq 8$	8
$8 < d \leq 10$	2

- (a) Calculate an estimate of the mean distance travelled to school by these pupils. (4)
- (b) The distances travelled are shown on the cumulative frequency diagram.



Use the cumulative frequency diagram to estimate

- (i) the median, (1)
- (ii) the interquartile range (2)
- (Total 7 marks)**

2.

- (a) Show that one solution of the equation  $x^3 + 5x = 66$  lies between 3 and 4. (2)
- (b) Find this solution correct to 1 decimal place. (4)
- (Total 6 marks)**

3.

There are 1200 students at a school.

Kate is helping to organise a party.  
She is going to order pizza.

Kate takes a sample of 60 of the students at the school.  
She asks each student to tell her **one** type of pizza they want.

The table shows information about her results.

Pizza	Number of students
ham	20
salami	15
vegetarian	8
margarita	17

Work out how much ham pizza Kate should order.

Write down any assumption you make **and** explain how this could affect your answer.

(Total 3 marks)

4.

Salt is sold in different sized blocks.

The weight of each block,  $B$  kilograms, is directly proportional to the cube of its height,  $h$  metres.

A block of weight 54 kg has height 3m.

(a) Find an equation connecting  $h$  and  $B$ .

(3)

(b) Find the weight of a block with a height of 1m.

(1)

(c) Another block has a weight of 128 kg.

Find its height.

(3)

(Total 7 marks)

5. **Non-calculator**

A bag contains only red and blue marbles.

Yasmine takes one marble at random from the bag.

The probability that she takes a red marble is  $\frac{1}{5}$ .

Yasmine returns the marble to the bag and adds five more red marbles to the bag.

The probability that she takes one red marble at random is now  $\frac{1}{3}$ .

How many marbles of each colour were originally in the bag?

(Total 3 marks)

6.

(a) (i) Factorise  $x^2 - 7x - 8$  (2)

(ii) Hence solve the equation  $x^2 - 7x - 8 = 0$  (1)

(b) Solve the simultaneous equations

$$\begin{aligned}5x + 3y &= 13 \\3x + 5y &= 3\end{aligned}$$

You **must** show your working.  
Do **not** use trial and improvement.

(4)  
(Total 7 marks)

7.

$y$  is inversely proportional to the square of  $x$ .

$y = 9$  when  $x = 4$ .

(a) Find  $y$  when  $x = 10$ .

(b) Calculate the percentage increase in  $y$  when  $x$  is decreased by 20%.

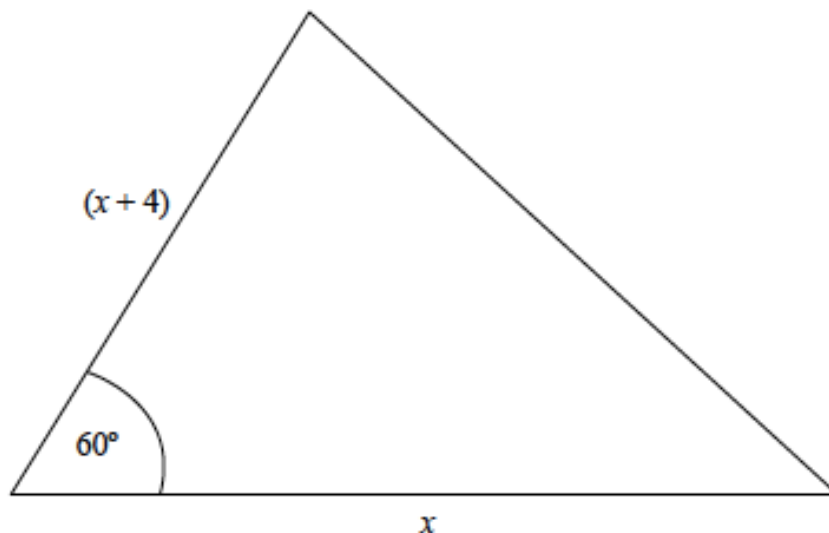
(Total 6 marks)

8.

Work out the formula for the  $n$ -th term of the sequence: 19, 15, 9, 1, ...

(Total 4 marks)

9. **Non-calculator**



The area of the triangle is  $15\sqrt{3}$  cm<sup>2</sup>.  
Work out the value of  $x$ .

(Total 6 marks)