

## Revision A F4 (End of Year Exam) [46]

1.

- 14** Jenny is practising the long jump.  
The table summarises the distances jumped by Jenny.

Distance, $d$ (metres)	$5.2 < d \leq 5.4$	$5.4 < d \leq 5.6$	$5.6 < d \leq 5.8$	$5.8 < d \leq 6.0$	$6.0 < d \leq 6.2$	$6.2 < d \leq 6.4$
Frequency	3	4	6	8	7	4

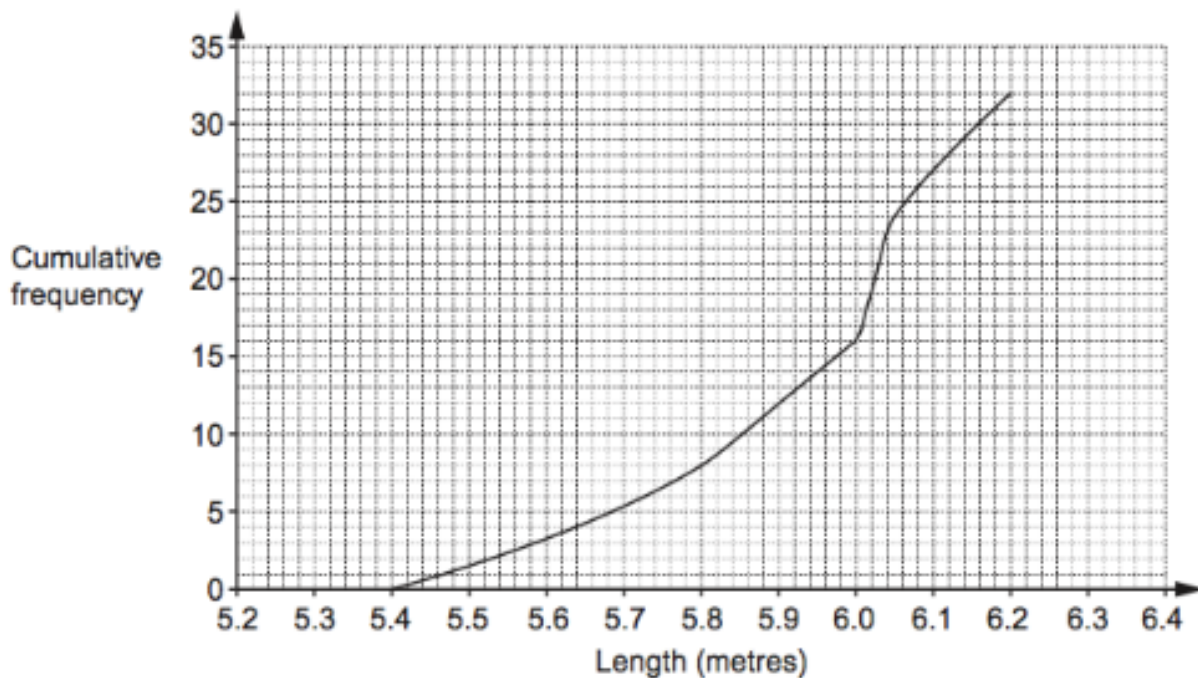
- (a) Copy and complete the cumulative frequency table.

Distance, $d$ (metres)	$d \leq 5.4$	$d \leq 5.6$	$d \leq 5.8$	$d \leq 6.0$	$d \leq 6.2$	$d \leq 6.4$
Cumulative frequency	3					

[2]

- (b) The cumulative frequency graph below summarises the distances jumped by Fran.

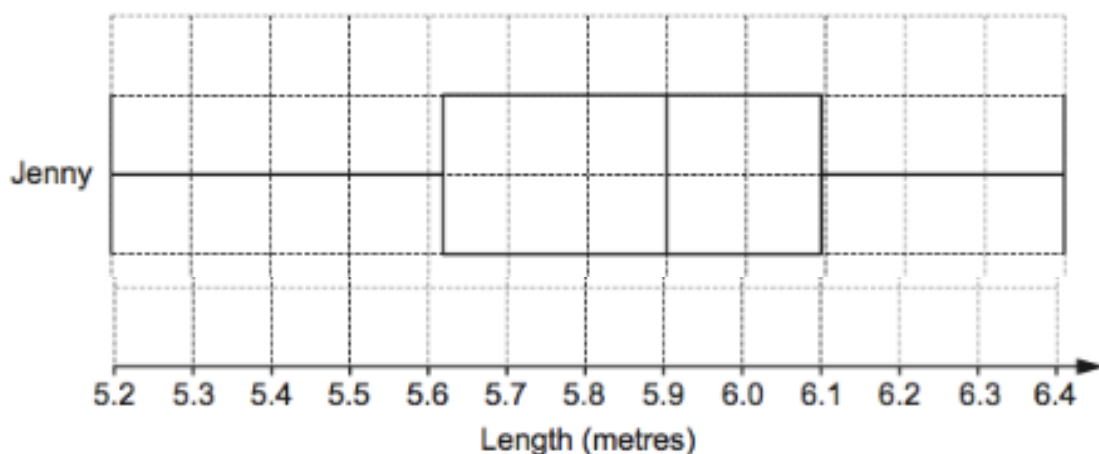
- (i) How many of Fran's jumps were less than 5.9 metres long?



- (ii) On a similar set of axes, draw the cumulative frequency graph for the distances jumped by Jenny. [2]

- (c) The box plot shows the distribution of the distances jumped by Jenny.

Draw the box plot for the distances jumped by Fran.



[3]

(d) Decide whether Jenny or Fran best satisfies each of the following questions. Give a reason for each of your decisions.

- (i) Who jumps longer on average?
- (ii) Who is the more consistent jumper?
- (iii) Who might produce the longer jump?

(Total 11 marks)

2.

- (a) Show that one solution of the equation  $x^3 - x = 29$  lies between 3 and 4. (2)
  - (b) Find this solution correct to 1 decimal place. (4)
- (Total 6 marks)

3.

Here are the first 5 terms of a quadratic sequence.

1                      3                      7                      13                      21

Find an expression, in terms of  $n$ , for the  $n$ th term of this quadratic sequence.

(Total 3 marks)

4.

In January 2002 the population of Africa was 650 000 000.

The population of Africa is increasing at the rate of 2.9% per annum.

- (a) Write down the single number that you need to multiply 650 000 000 by to calculate the population of Africa in January 2003. (1)
- (b) Assuming Africa's population continues to increase at the same rate, calculate the population of Africa in January 2020. (3)

(Total 4 marks)

5.

The probability of each outcome of a computer game is shown in the table below.

<b>Outcome</b>	Win	Lose	Draw
<b>Probability</b>	0.3	0.25	

(a) Complete the table.

[2]

(b) Cynthia plays the game 30 times.

(i) Calculate the number of times Cynthia should expect to win.

(ii) Cynthia wins the game 4 times.

She says

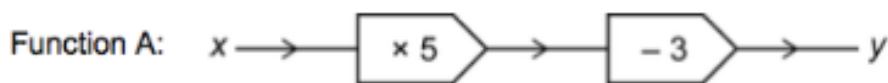
**I should have won more times.**

Explain why she may be wrong.

(Total 5 marks)

6.

Here is a function.



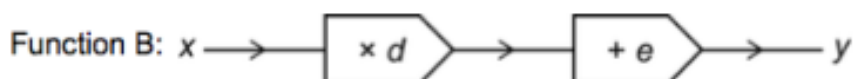
(a) (i) Work out  $y$  when  $x = -2$ .

(ii) Work out  $x$  when  $y = 72$ .

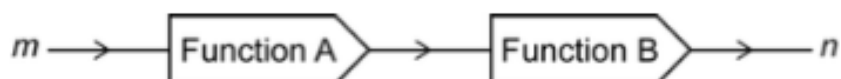
(iii) Find the inverse of function A.

[2]

Here is another function.



(b) The diagram below shows a composite function.



When  $m = 4$ ,  $n = 53$ .

When  $m = 9$ ,  $n = 128$ .

Find the values of  $d$  and  $e$ .

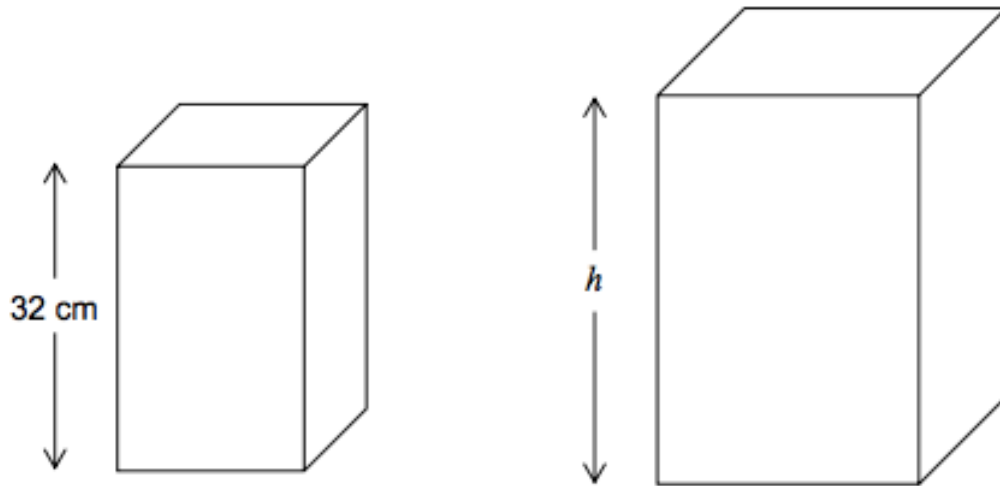
(Total 8 marks)

7.

Two boxes are made with card.

The boxes are similar cuboids.

The smaller box has height 32 cm



It takes 44% more card to make the larger box.

Work out the height,  $h$ , of the larger box.

**[4 marks]**

8.

In a village  $\frac{3}{5}$  of the pensioners have had a flu jab.

If a pensioner has had the flu jab the probability of catching flu is  $\frac{1}{30}$

If a pensioner has **not** had the flu jab the probability of catching flu is  $\frac{7}{10}$

(a) Calculate the probability that a pensioner, picked at random, from this village catches flu.

(3)

(b) A statistician calculated that 120 pensioners from this village are expected to catch flu.

Calculate how many pensioners live in the village.

(2)

**(Total 5 marks)**