

PICK

NUMIX

Name:

.....

.....

Higher 7+

Paper 5

	Q	Topic	My Mark	Max Marks
Non Calculator	1			5
	2			3
Calculator	3			7
	4			9
	5			4
	6			11
				39

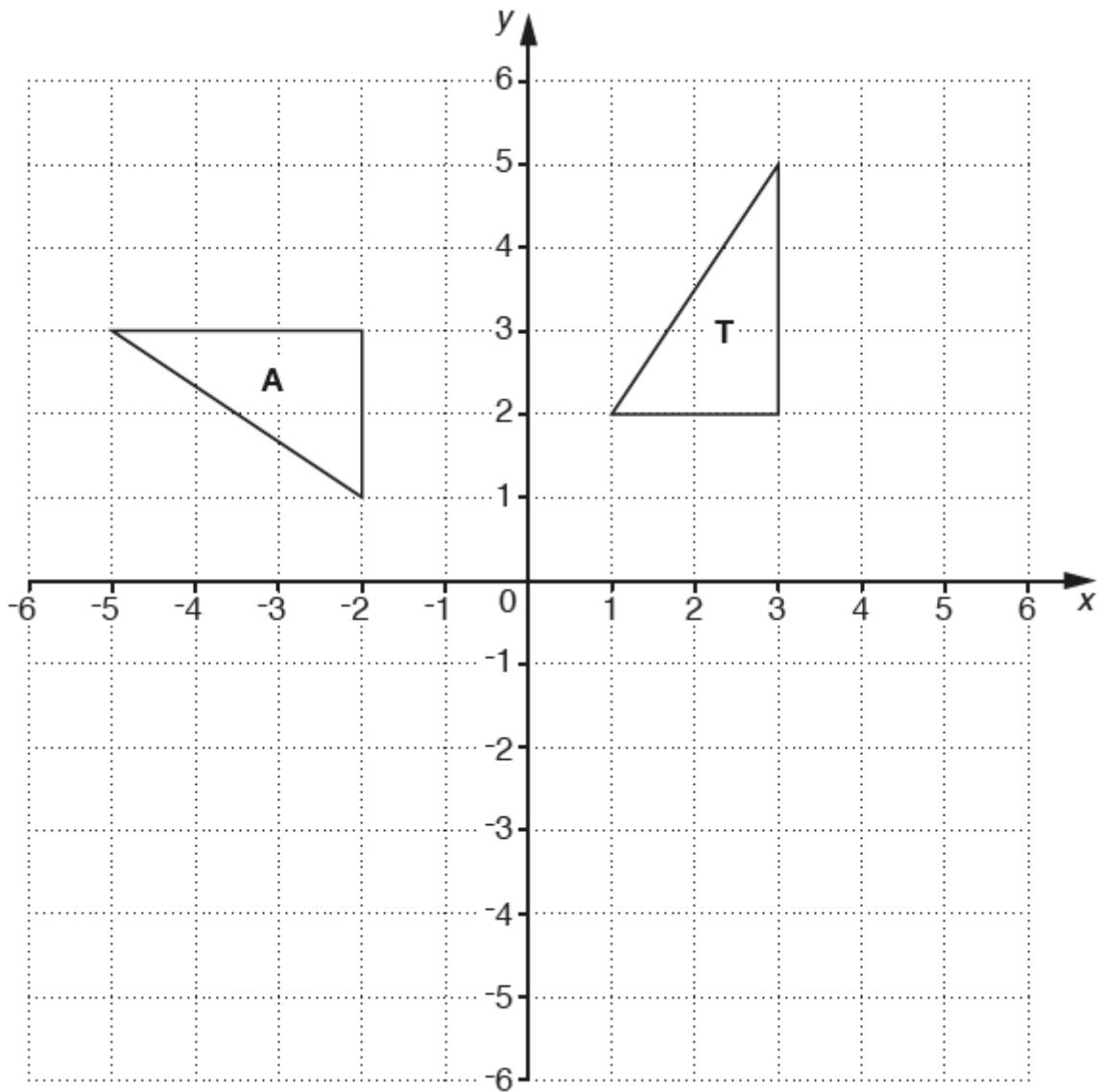
Revision list:

What I need to remember:

A Jagger

Question 1

The diagram shows two triangles on a square grid.



Triangle T is translated by the vector $\begin{pmatrix} 2 \\ -4 \end{pmatrix}$ and rotated 90° anticlockwise about centre $(-1, 0)$.

Describe the single transformation that maps triangle T onto triangle A.

Question 2

Find the interval for which $x^2 - 7x + 10 \leq 0$.

..... $\leq x \leq$ **[3]**

Question 3

(a) Show that one solution of the equation $x^3 + 4x = 1$ lies between 0 and 1.

[2]

(b) Show that $x^3 + 4x = 1$ can be written in the form $x = \frac{1}{4} - \frac{x^3}{4}$.

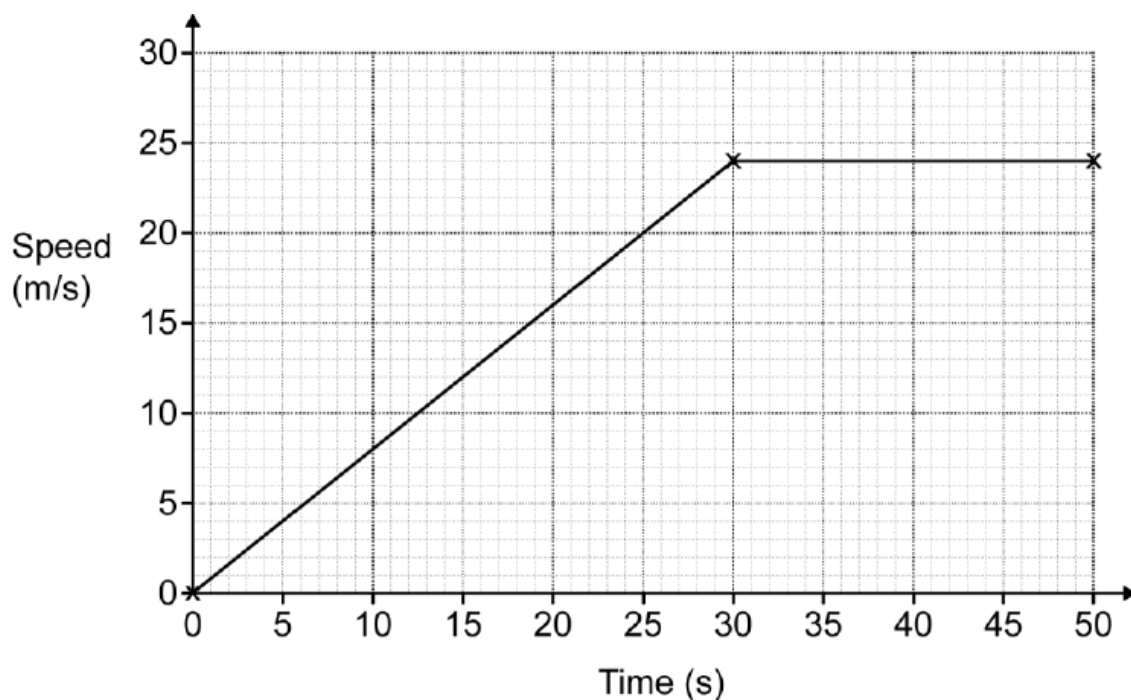
[2]

(c) Use the iteration formula $x_{n+1} = \frac{1}{4} - \frac{x_n^3}{4}$ to find a solution to $x^3 + 4x = 1$ to 2 decimal places.
Start with $x_0 = 1$.

..... **[3]**

Question 4

The graph shows the speed of a car during 50 seconds of motion.



(a) What is the speed after 20 seconds?

..... m/s
[1]

(b) Find the acceleration for the first 30 seconds.

..... m/s²
[2]

(c) Work out the distance the car travelled during the 50 seconds.

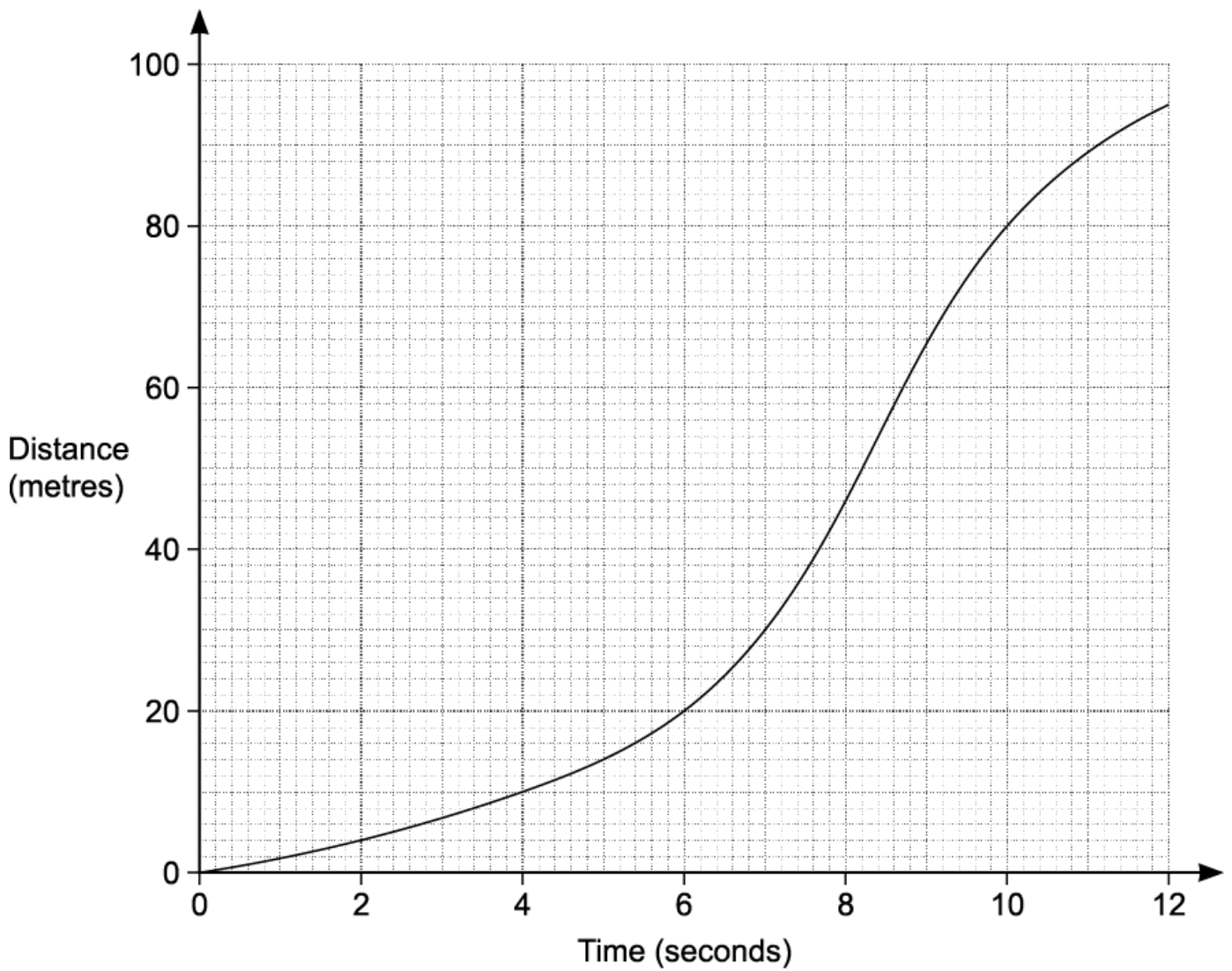
..... m
[3]

(d) Work out the average speed of the car, in kilometres per hour, during the 50 seconds

..... km/h
[3]

Question 5

The graph shows the distance travelled by a lorry in 12 seconds.



Estimate the speed of the lorry after 5 seconds.

..... m/s
[4]

Question 6

(a) Jenny is practising the long jump.

The table summarises the distances jumped by Jenny.

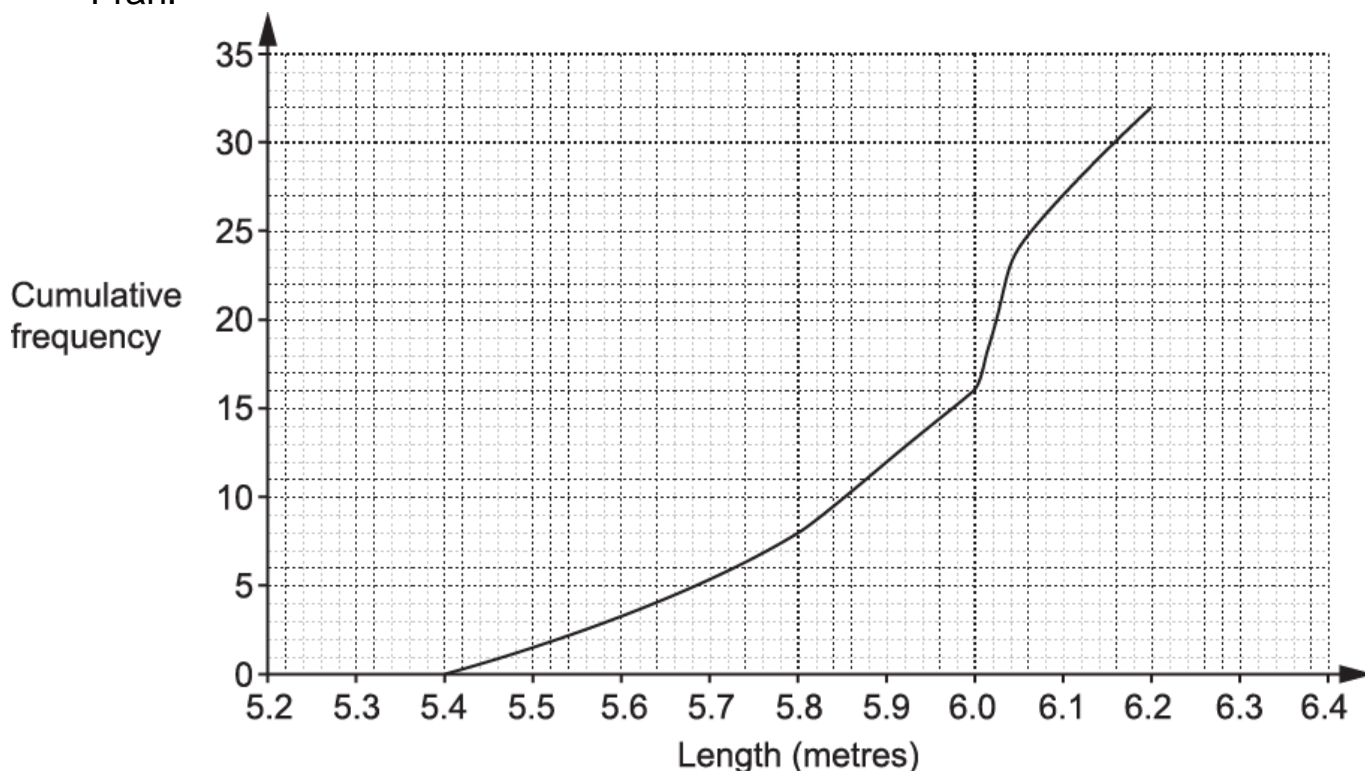
Distance, d (metres)	$5.2 < d \leq 5.4$	$5.4 < d \leq 5.6$	$5.6 < d \leq 5.8$	$5.8 < d \leq 6.0$	$6.0 < d \leq 6.2$	$6.2 < d \leq 6.4$
Frequency	3	4	6	8	7	4

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.



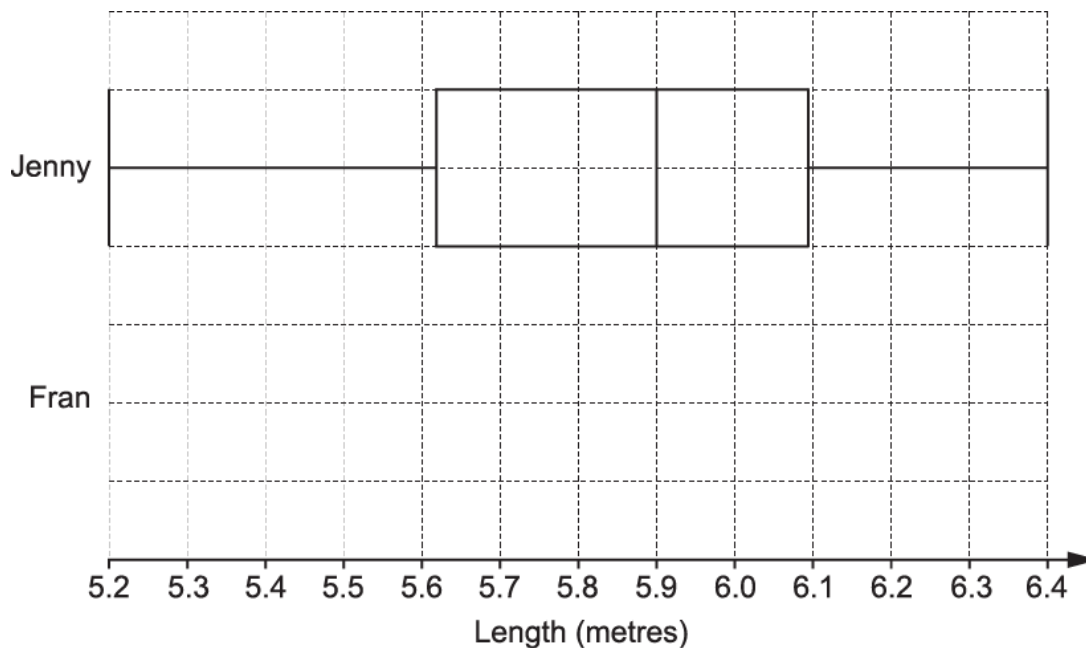
i. How many of Fran's jumps were less than 5.9 metres long?

.....
[1]

ii. On the same diagram, 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?

..... because

.....

[1]

ii. Who is the more consistent jumper?

..... because

.....

[1]

iii. Who might produce the longer jump?

..... because

.....

[1]