

BLOCK 7 TEST

TIME: 45 minutes

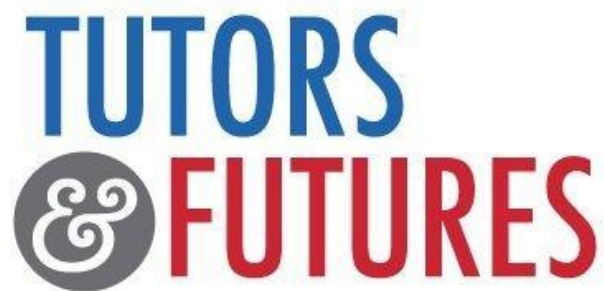
The total mark for this paper is 50

NAME

TOTAL MARKS

PERCENTAGE

Calculators may not be used.



1. (a) Factorise $2x^2 + 11x + 12$

.....
(Total 2 marks)

- (b) Solve $15x^2 - 22x + 8 = 0$

.....
(Total 3 marks)

2. Work out the formula for the nth term of the quadratic sequence:

2, 10, 24, 44

.....
(Total 4 marks)

3. Work out the formula for the n th term of the quadratic sequence:

-2, -1, 1, 4

.....
(Total 4 marks)

4. x is inversely proportional to the square root of y

When $x = 12$, $y = 9$

Find the value of x when $y = 81$

.....
(Total 3 marks)

5. (a) Find the value of $\left(\frac{64}{125}\right)^{2/3}$

.....
(Total 2 marks)

- (b) Given that $4^n = 8$
Find the value of n

.....
(Total 2 marks)

6.

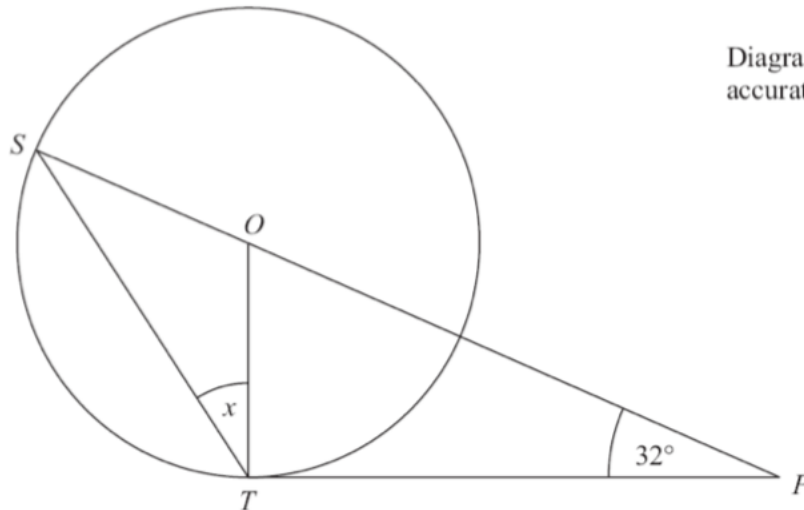


Diagram **NOT**
accurately drawn

S and T are point on the circumference of a circle, centre O .
 PT is a tangent to the circle.
 SOP is a straight line.

Angle $OPT = 32^\circ$

Work out the size of the angle marked x .
 Give reasons for your answer.

.....^o
(Total 5 marks)

7. (a) Simplify fully $\frac{3x+6}{x-4} \div \frac{2x^2+9x+10}{x^2-4x}$

.....
(Total 3 marks)

(b) Solve $\frac{7}{x+1} - \frac{4}{3x-2} = 1$

.....
(Total 4 marks)

8. g is directly proportional to the square root of h

When $g = 18$, $h = 16$

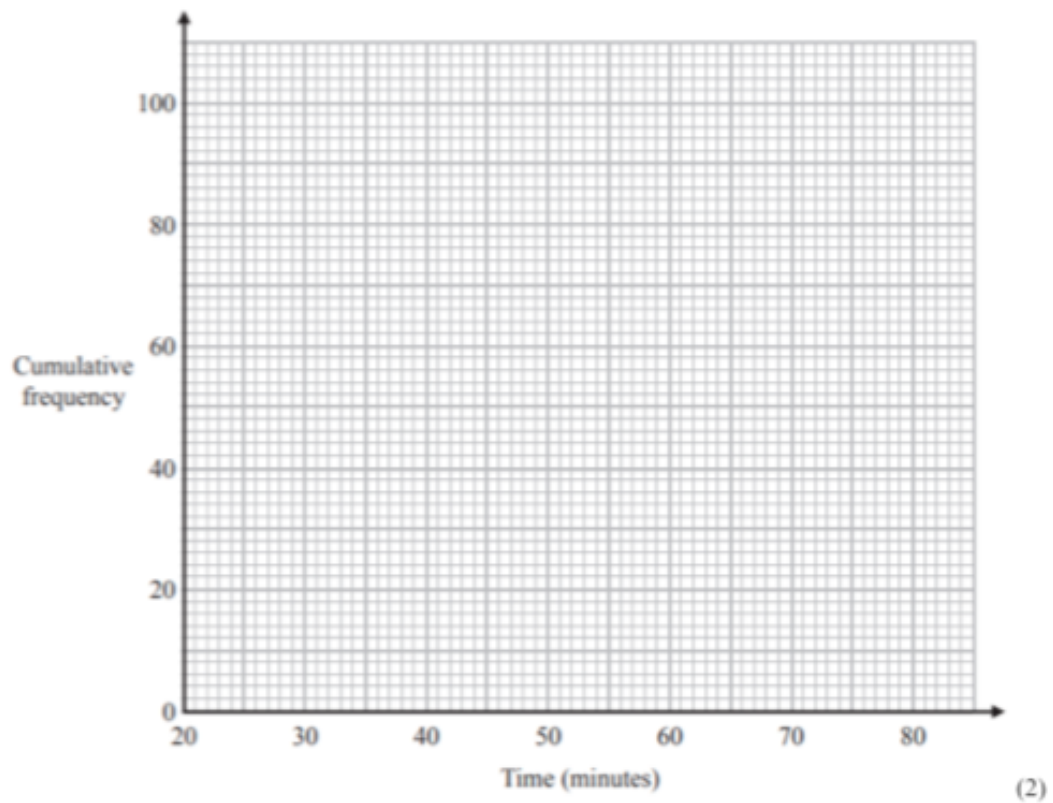
Find the possible values of h when $g = 2$

.....
(Total 3 marks)

9.

Time (minutes)	Frequency
$20 < t \leq 30$	9
$30 < t \leq 40$	16
$40 < t \leq 50$	20
$50 < t \leq 60$	29
$60 < t \leq 70$	15
$70 < t \leq 80$	11

(a) On the grid, plot a cumulative frequency graph for this information.



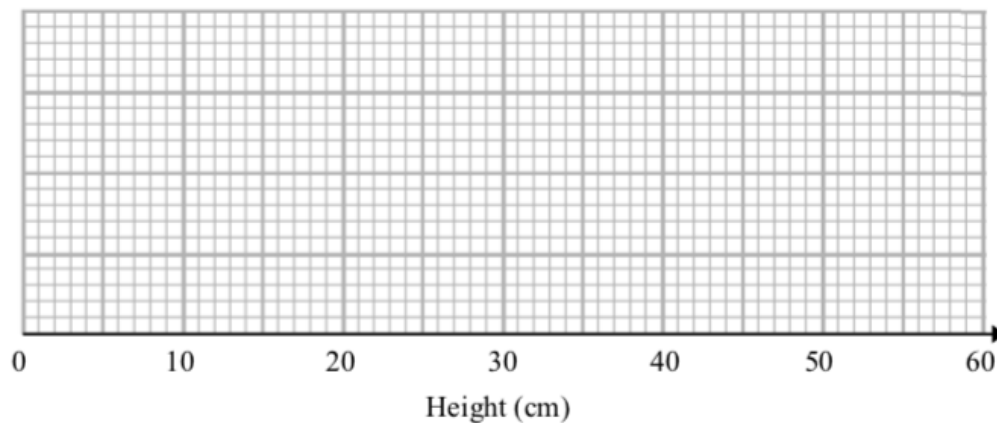
b) Find an estimate for the median time taken

.....
(Total 3 marks)

10. The table shows some information about the heights of some plants in Maggie's garden.

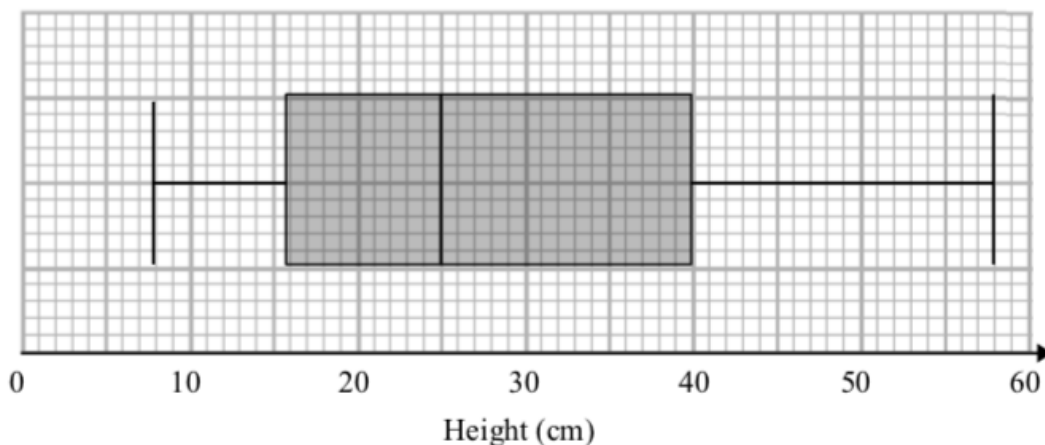
Minimum	Lower Quartile	Median	Upper Quartile	Maximum
12	27	35	42	55

- a) Draw a box plot for this information



(Total 2 marks)

- b) There are also some plants in Nigel's garden.
The box plot below shows the distribution of the heights of Nigel's plants.



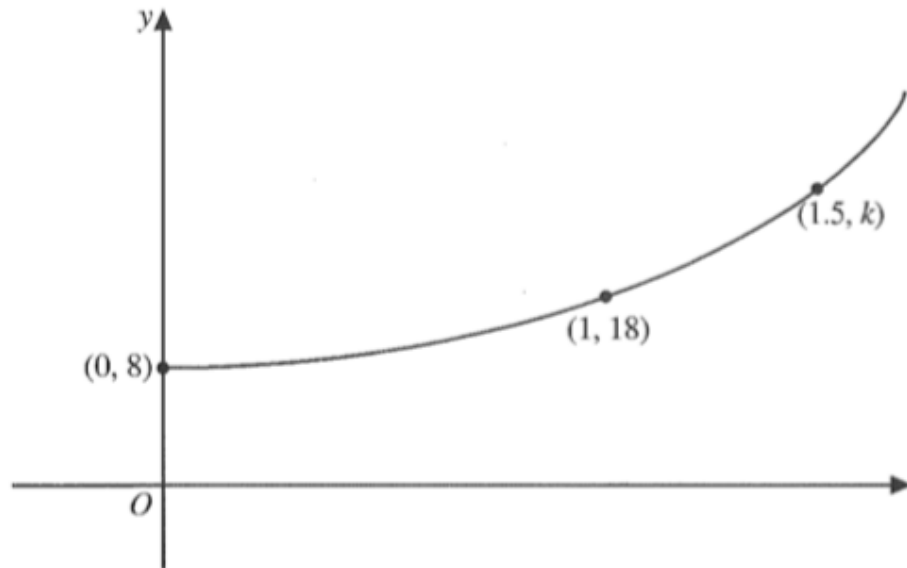
Compare the distribution of the heights of Maggie's plants with the distribution of the heights of Nigel's plants.

.....

(Total 2 marks)

11.

This sketch shows part of the graph with equation $y = pq^x$, where p and q are constants.



The points with coordinates $(0, 8)$, $(1, 18)$ and $(1.5, k)$ lie on the graph. Calculate the values of p , q and k .

.....
(Total 6 marks)

12. Simplify fully $\frac{3x^2+9x}{x^2-9}$

.....
(Total 2 marks)