BLOCK 8 TEST

TIME: 45 minutes
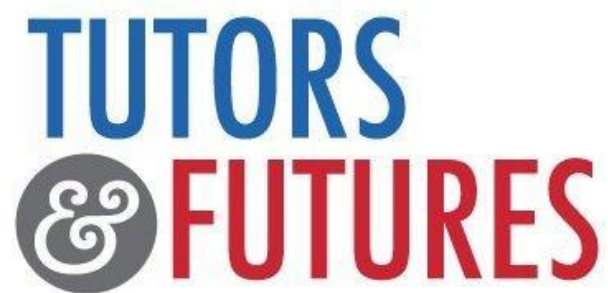The total mark for this paper is 50

NAME	TOTAL MARKS	PERCENTAGE

Calculators may be used.

TUTORS & FUTURES

1. (a) Solve $2x^2 - 11x + 9 < 0$

....

(Total 4 marks)

(b) Solve $6x^2 + 11x - 10 < 0$

....

(Total 4 marks)

2. Solve $5x^2 = 6x + 3$

Give your solutions correct to 3 significant figures.

....

(Total 3 marks)

3.   A circle has centre (2, 5)
The point A (11, 8) lies on the circumference of the circle

Find the equation of the tangent to the circle at A

....
(Total 5 marks)

4.   Given that f $(x) = x^2 - 17$ and g $(x) = x + 3$

a) Work out an expression for: $g^{-1}(x)$

…………………………..
(Total 2 marks)

b) Work out an expression for: $f^{-1}(x)$

…………………………..
(Total 2 marks)

c) Solve: $f^{-1}(x) = g^{-1}(x)$

…………………………..
(Total 4 marks)

5. (a) Solve the simultaneous equations

$$x^2 + y^2 = 41$$
$$y = 2x - 3$$

x =…...........................

y =…...........................
(Total 5 marks)

(b)   Solve the simultaneous equations

$$x^2 + y^2 = 27$$
$$2x - y = 3$$

x =…………………………..

y =…………………………..
(Total 5 marks)

6.

A

19.7 m

15.4 m

B

C
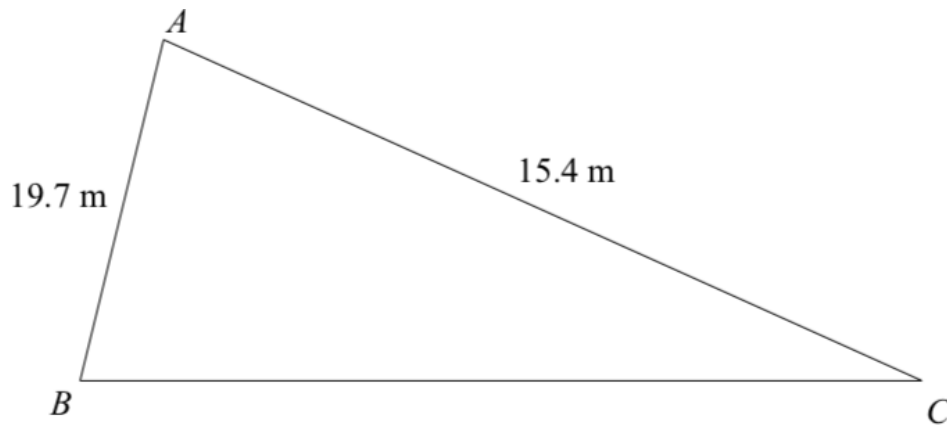
The area of the triangle is $100m^2$
Calculate the perimeter of the triangle ABC.
Give your answer to 3 significant figures.

....

(Total 5 marks)

7. The table shows information about the time, in seconds, taken for some people to complete a puzzle.

Time (s)	Frequency
$10 < t \leqslant 25$	12
$25 < t \leqslant 35$	28
$35 < t \leqslant 40$	42
$40 < t \leqslant 45$	
$45 < t \leqslant 60$	9

Use the information to complete the histogram and the table.

Time (s)
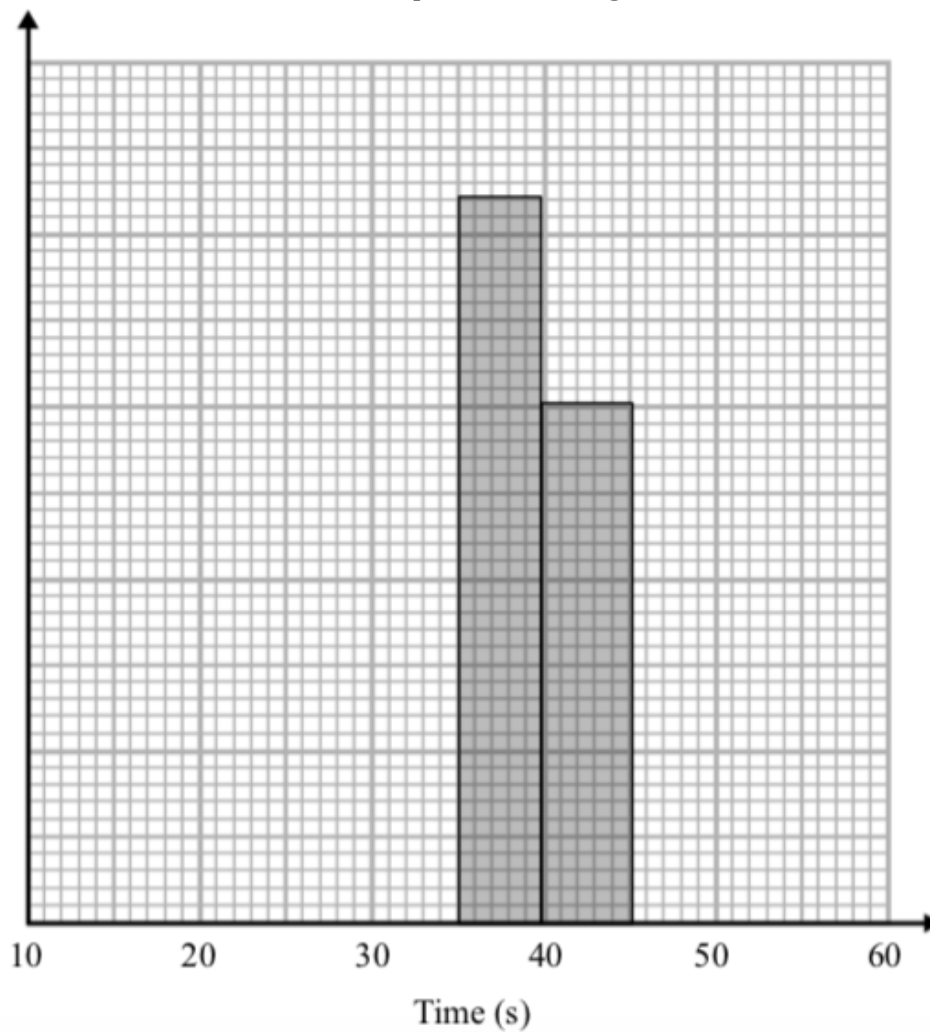
(Total 4 marks)

8. Show that $\dfrac{5+2\sqrt{3}}{2+\sqrt{3}}$ can be written as $4 - \sqrt{3}$

....

(Total 3 marks)

9. Show that $\dfrac{1}{\frac{1}{\sqrt{2}}+\sqrt{2}}$ can be written as $\dfrac{\sqrt{2}}{3}$

....

(Total 4 marks)