JustMaths

TRIAL AND IMPROVEMENT

Name: _____

Total Marks: _____

Q.	Max	Actual	RAG
1	4		
2	4		
3	4		
4	4		
5	3		
6	6		
7	4		
8	4		
9	4		
10	3		

Q1. The equation

$$x^3 + 5x = 67$$

has a solution between 3 and 4

Use a trial and improvement method to find this solution.

Give your answer correct to one decimal place.

You must show ALL your working.

x = ... (4 Marks)

Q2. The equation

$x^3 + 10x = 51$

has a solution between 2 and 3

Use a trial and improvement method to find this solution.

Give your answer correct to 1 decimal place.

You must show all your working.

x = ... (4 Marks)

Q3. The equation

$$x^3 + 4x^2 = 8$$

has a solution between -3 and -3.5

Use a trial and improvement method to find this solution.

Give your answer correct to two decimal places.

You must show ALL your working.

x = ... (4 Marks)

Q4. The equation

$x^3 + x^2 = 50$

has a solution between 3 and 4

Use a trial and improvement method to find this solution.

Give your answer correct to 3 significant figures.

You must show all your working.

x = ... (4 Marks)

Q5. The equation $x^3 - 15x + 3 = 0$ has a solution between 3 and 4.

Use trial and improvement to find this solution.

Give your answer to 1 decimal place.

Show clearly the outcomes of your trials.

x = ... (3 Marks)

Q6. Show that the equation $x^3 - 8x + 5 = 0$ has a root between $x = 2$ and $x = 3$.

Use trial and improvement to find this root correct to 1 decimal place. Show all your trials and their outcomes.

x = ... (6 Marks)

Q7. Use trial and improvement to find a solution to the equation

$x^3 + \sqrt{x} = 163$

Continue the table of results.

Give your solution to 1 decimal place.

x	$x^3 + \checkmark x$	Comment
6	$6^3 + \sqrt{6} = 218.449$	Too big

(4 marks)

Q8. Use trial and improvement to solve this problem.

$x^3 + x^2 = 100$

Give your answer to 1 decimal place.

Show all your trials and their outcomes.

(4 marks)

Q9. The equation $x^3 - 5x - 2 = 0$ has a solution between $x = 2$ and $x = 3$.

Use trial and improvement to find this solution correct to 1 decimal place.

$x =$ ..... (4 Marks)

Q10. There is a positive value of x which satisfies $x^2 = 6.5$. Find this value of x correct to the nearest whole number. You must justify your answer.

$x =$ ..... (3 Marks)